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THE CANADIAN AGRICULTURIST,

AND

Journal and Transactions

OF

THE BOARD OF AGRICULTURE

OF

UPPER CANADA.

PUBLISHED SEMI-MONTHLY,

AND DEVOTED TO

Agriculture, Horticulture, Science, and Domestic Economy.

VOL. XII, 1860.

48105
11.11.48

Toronto:

PRINTED AND PUBLISHED FOR THE BOARD OF AGRICULTURE

AT THE GUARDIAN PRINTING ESTABLISHMENT, KING STREET EAST.

1860.

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THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, JANUARY 2, 1860. No. 1.

NEW ARRANGEMENTS.

We announced in the closing numbers of the *Agriculturist* for 1859, that it had been determined to commence with the new year publishing twice a month. The present number is a specimen of the form in which the paper will appear henceforth. The necessity of issuing two sheets together heretofore, with a separate printed cover, has been the cause, owing to the amount of press work, folding, stitching, &c., to be done, of considerable delay in the regular appearance of the publication. Being dependent upon job offices for this work, it has often happened that a good many days would elapse, after the paper was ready for the press, before it could be mailed to subscribers. The cover will therefore be dispensed with, and instead of issuing two sheets of twenty-four pages each, once a month, a sheet of thirty-two pages will be issued twice a month. There will consequently be sixty-four pages of reading matter in the month instead of forty-eight as formerly, being equal to an enlargement of one-third upon the old size. By the method of publication now adopted, we shall be able to publish punctually on the 1st and 16th of each month, and every effort will be made to render the paper valuable and interesting. Each number will consist in part of the Transactions of the Board of Agriculture, and in part of the "Journal," or "Agriculturist." The pages of the Transactions will always be printed in the centre of the sheet, so that they can be readily taken out, after cutting the leaves, and put away separately, if desired, leaving the Journal complete of itself. The number of pages of Transactions will vary according to circumstances, but will as a general rule, be about equal to the present number. The pages herewith given are the continuation, from the December number of the *Agriculturist*, of the Transactions for 1859, which will be continued in future numbers till the volume for that year is completed.

The terms of subscription for the present year are advertised in another part of this issue, and we request particular attention to them. We think the arrangements now made cannot fail to be satisfactory in the fullest degree to subscribers. Officers of Agricultural Societies, or Clubs, who obtain subscriptions, will oblige by forwarding them at as early a date as possible, so that we may know the number of copies we ought to print for the year. The lists of subscriptions will be summed up on the 1st of April, and the premiums declared, according to the

programme, and immediately forwarded to the parties. We ask the farmers, and the friends of Agricultural improvement generally throughout the country, to lend their hearty co-operation in giving the *Agriculturist* this year, a larger circulation than it has ever yet had, and also to afford their valuable assistance in contributing to its pages, thereby rendering it increasingly useful and interesting to themselves and others.

PRIZES FOR REPORTS.

With the view of inducing the officers of Agricultural Societies to collect and embody in their annual reports more information of a character which will be valuable and interesting to the public at large, and to persons residing in other countries, than has heretofore been the case, and to draw up the reports in a more generally correct and painstaking style than the majority of those heretofore received, the Board of Agriculture offers the following premiums:—

For the best County Agricultural Society Report, adopted at the Annual Meeting and transmitted to this office before or on the 1st April next, a prize of	$30 00
For the second best do	20 00
For the third best do	15 00
For the fourth best do	10 00
For the best Township Society Report adopted at the Annual Meeting and forwarded as above along with the report of the County Society	20 00
For the second best do	15 00
For the third best do	10 00
For the fourth best do	5 00

By reference to the 42nd and 47th clauses of the Act, which was given in full in the April number of the Journal and Transactions, 1858, it will be seen that each report should consist of four distinct parts:—

1. The names of all the members of the Society, with the amount paid by each set opposite his name.

2. The names of all persons to whom premiums were awarded, with the amount of premium, and the animal or article for which it was given.

3. Such remarks and suggestions upon the Agriculture and Horticulture of the county or township, and arts and manufactures therein, as the directors shall be enabled to offer.

4. A detailed statement of the receipts and disbursements of the Society during the year. (If this is voluminous, a condensed statement or balance sheet ought to be added, showing the amount of receipts and expenditure under the several principal headings.)

It is in part 3 of the report, as above detailed, that improvement is mainly desirable. The majority of the reports have heretofore been sent in, without any attention being paid to this requirement of the Act at all. The remarks ought to be of such a character as to give the reader a correct idea, so far as possible, of the actual condition and progress of Agriculture, Horticulture, &c., in the County or Township, with the profits and advantages offered by those pursuits. And in order to do this clearly, the report ought not to embody vague generalities, so much as specific statements of facts. For instance, the generally prevailing character of soil may be stated, the average value per acre, as proved by actual sales, the prevailing system of cultivating and cropping the land, the actual returns of the various kinds of crops as nearly as can be estimated per acre, the current rate of wages for laborers and mechanics, or any other information of a similar character. If the crops have been injured, by any insect or other cause of blight, state the amount of damage done, and whether greater or less than other years. State the amount of improvement taking place in the different breeds of cattle, sheep, &c., and what breeds are believed to be best adapted to the locality. Give the details, with the cost and results, of experiments in breeding or feeding cattle for sale, or of dairy operations, or sheep farming. If any

farmer has commenced the thorough draining of his land, the cultivating root crops extensively, or any other ameliorating improvement, state the fact and the results, and the supposed amount of such improvement taking place in the county or township. State any improvements that may be taking place in the introduction of agricultural implements, the progress making in the cultivation of fruit trees, or other horticular operations, and the success attending it. If there is any particular improvement necessary in farm management, or for the proper development of the capabilities of the soil, let it be stated. The leading features of the annual exhibition, as a display of agricultural and mechanical products, and as showing the interest taken in the progress of improvements by the residents in the county or township, may also be briefly referred to. In short, the report should be such a concise and faithful sketch, supported by such brief details and statistics, as would enable the reader at a distance to estimate the general progress and capabilities of the county or township correctly.

It is not necessary that the portion of the reports here referred to should be very long. For a County, from ten to twenty, and for a Township, from six to twelve pages of ordinary writing on foolscap paper would afford abundant space. It is not desired, however, to restrict the reports in any way. The reports, or so much of them as may be considered suitable, will be published in the Transactions, and the names of the successful competitors will be immediately announced after the prizes have been adjudged. The amount of prize will be forwarded, unless in the case of instructions to the contrary, to the Secretary or other officer of the Society, from whom the report shall have been received. It is hoped that these reports will furnish a large amount of interesting and useful information for publication in the Transactions.

Should there not be considered to be sufficent time, after receiving this notice, to get up the information, the report might be adopted *pro forma*, and afterwards amended, with the consent of the Directors. It is highly desirable, however, that the reports should be forwarded to the Board of Agriculture, if possible, some time prior to the 1st of April, the date fixed by law.

HUGH C. THOMSON,
Sec. Board of Agriculture.

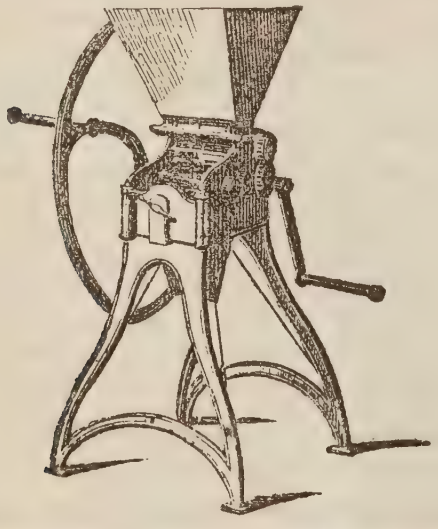
Toronto, Dec. 15, 1859.

GRAIN CRUSHERS.

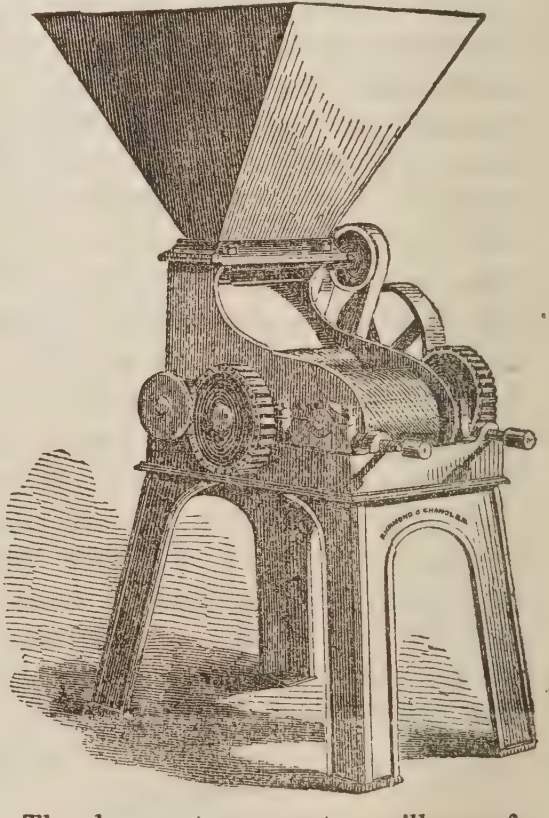
It is now a recognised fact in the improved practice of British Agriculture, that the food of cattle, such as hay, straw, oats, &c., when cut or bruised, is far more economical and nutritious, than when given in its crude state. By this means not only less masticating force is required, but the food itself, by being broken up, yields more readily and completely its nutritious ingredients to the wants of the animal. Bruised oats, for example, have been found by experience to go one-half further in measure after being crushed, and the horse put into better condition for work at less expense. Comparatively few of the grains of oats when given whole are masticated, as is obvious from their being voided in the same state, and consequently they cannot have been of much benefit to the animal. It is well known that grain given to animals in its natural state, sometimes produces injurious and even fatal consequences; especially when it is new and damp and given in large quantities. But if it is bruised, it can be taken by animals with safety, as it will be deprived of its vitality; while crushing greatly facilitates the mastication and digestion of the food, and all the functionary processes are thereby much quickened.

It is in every respect desirable that the practice of crushing grain, as cattle-food, should be generally introduced into Canada. Wherever it has been fairly tried in this country, the advantages of the practice have been acknowledged. In a season like the present, when the hay crop has fallen so much below an average, it behoves the

farmer to use every means in his power to economise his fodder and grain, which cannot be done without some efficient machinery to accomplish the work of disintegration. With this view we present our readers with a short description and illustrations of RICHMOND & CHANDLER'S GRAIN CRUSHERS, manufactured at Manchester, England. This firm has long been favorably known to the agricultural public, both at home and in the Colonies; and they seem determined to keep the pre-eminence in the manufacture of machines essentially their own invention.—They have evinced untiring energy and skill in the improvement of Grain-Crushers, which continue to sustain their high reputation, by the very careful and accurate finish of their machines, thus causing exactness of performance and diminished friction. Conscious that to excel is a certain means of procuring increased trade, their utmost endeavors have been taxed to produce mills for all kinds of grain, upon the most approved and scientific principles, to attain which they have been aided by their safe and invaluable guides—long practice and great experience. The peculiar construction of these mills consists in their effective arrangement for bruising the various kinds of grain without change of rollers, and by the extent of their operations, materially reducing the cost of crushed grain, at the same time sustaining the commercial fact, that an article to be really cheap must be good.

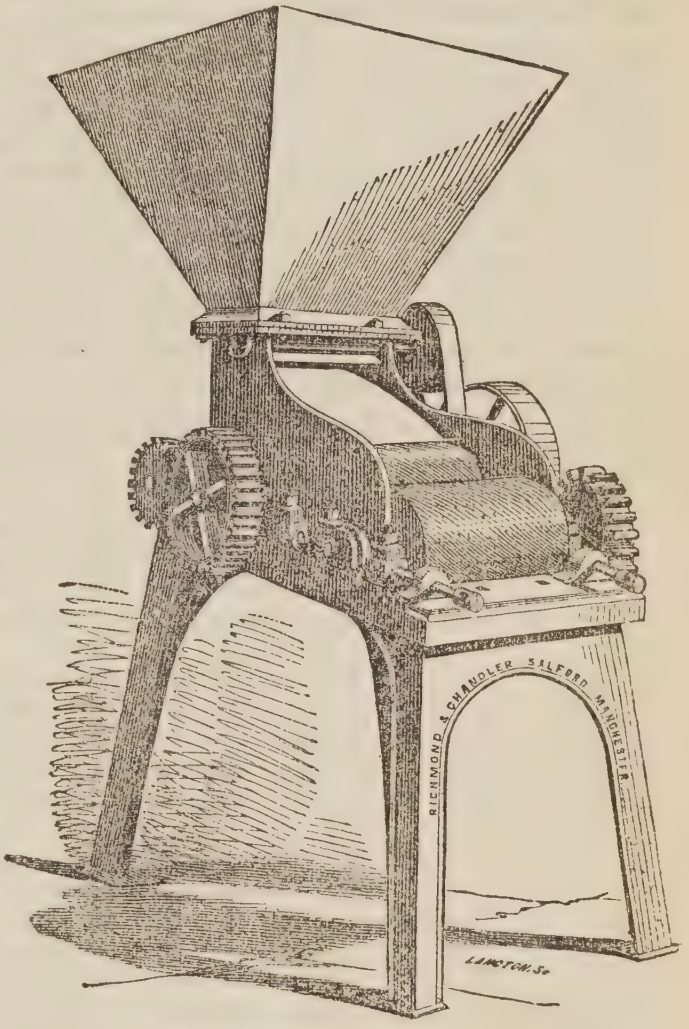


The above cut represents a perspective view of one of the smaller kinds of Richmond & Chandler's Grain Crushers; and is adapted, like the larger sorts, for reducing peas, beans, oats, Indian Corn, &c. It is simple in its construction, having diagonally machine-fluted and case hardened rollers, and for its size and price is of great efficiency and durability, and mounted on iron legs. A simplified feature in this mill is the employment of a setting screw on the back of the feeder, a slight turn being all that is required to increase or diminish the supply on the working rollers, which are so formed as to have both a cutting and a crushing action, and, by the new application of feeding, can be regulated to suit the strength of one boy, and will thoroughly crush by this small power a bushel in ten minutes. The rollers may be set any distance apart by a simple screw in front of the mill, which moves in parallel bars the front roller, and, with the least pressure of the finger can be made to adjust the rollers to bruise to any degree of fineness. Size of rollers 7 inches by 3½ inches. Price, £5 5s. sterling.



The above cut represents a mill manufactured by this celebrated firm of a larger size.

It is admirably adapted for power, being mounted on a strong iron frame, which imparts steadiness to its operations; while the great strength of machinery, which is the most accurately fitted with a parallel adjustment, can instantaneously be regulated by two hand-screws in front to crush to any degree of fineness. This mill, combining the best features of former inventions, possesses some important improvements, being fitted with strong brass bushes, loose caps, and counter-shaft. The feed apparatus is worked by a thumb-screw at the back, and can be regulated to suit any power employed, and will be found to effect an immense saving in wear and tear; it can be driven with a 16-inch pully, at 200 revolutions per minute, without danger to the working parts. Size of rollers 11 inches by 6½. Price, with pulley, £10 12s.



This newly improved mill, is of similar construction to the last, but much larger, and, from the extraordinary strength of machinery and the superior engineering workmanship displayed, is peculiarly well adapted to crush, with facility, a much larger quantity of grain than any other made; while the new process of hardening the rollers renders them indestructible in use, and unapproachable in operation. The possession of unlimited facilities in the use of steam machinery with the constant employment of the most skilled mechanics, together with the inventors' long practical experience, effect a saving of useless expenditure in the cost of crushing corn. Size of rollers, 14 inches by 8. Price, with 18-inch pulley, £14 15s.

We shall give in a future number a description and illustrations of Messrs. Richmond & Chandler's renowned CHAFF MACHINES. Such of our readers as may visit England, would do well to visit this manufacturing establishment in Salford, Manchester, or South John Street, Liverpool.

The amount of salt manufactured at Syracuse, New York, is seven millions of bushels annually. The annual revenue to the manufacturers is $3,000,000, and the income to the State is $70,000, as a tax of one per cent. is charged. The total of salt manufactured in the United States is sixteen millions of bushels yearly.

At Thorlod, C.W., situated four miles above St. Catharines, on the Welland Canal, there is a small cotton mill, started a year since, running 2,000 spindles, and making very beautiful shirtings. There is also a batting mill, making 200 lbs. per day. The shirtings and batts sell at good profit, as the tariff of 20 per cent gives them a fine margin. Help is very plenty at very low wages compared to Lowell prices. Freight from New York, delivered at the mills, is 30 per cent per 100 lbs., averaging $1.25 per bale.

Agricultural Intelligence.

BIRMINGHAM FAT CATTLE AND POULTRY SHOW.

This Annual Show of the Midland Counties of England, took place, as usual, the beginning of December, and although it fell somewhat short of last year's, yet it has been propounced not below an average. There were 135 exhibiters of animals and roots, and 412 of poultry and pigeons. In the various classes there were 109 cattle, 44 sheep, and 81 pigs. The Herefords, as might be supposed from the contiguity of of the show to their native district, were in considerable numbers and of excellent quality. Mr. Shirley's Hereford steer won the gold medal, and several money prizes, as the best animal in the yard. Col. Townley's short horn heifer won similar honors. Her sire was the world-renowned "*Master Butterfly*," which the Colonel sold about two years since to a firm in Australia for the unprecedented sum of 1200 guineas! From recent accounts, we regret to learn that this bull is dead; not, however, without leaving descendants both in England and the colony. Prince Albert gained a first prize for a beautiful Devon Steer of his own breeding. The now almost obsolete Long-horns, were favorably represented, together with some excellent specimens of the Welsh and Scotch breeds.

In fat sheep and pigs the show appears to have been satisfactory, but the Downs are said to have fallen short, especially in quality. A memorial was agreed to, requesting the Royal Agricultural Society to admit the Shropshire Downs as a distinct breed, to which they appear to possess strong claims. The following remarks of the reporter of the *Mark Lane Express*, will be read with interest on this side the water.

"There were three pens of Cotswolds, the prize sheep of which division had this note added on to the award:—"*The Judges complain of the unfairness of the way in which the sheep in this pen had been shorn*;" and very properly too: the only matter for surprise is that they did not complain of two-thirds of the sheep they inspected. In the Leicester and Southdown classes more particularly, the manner in which some of the animals were trimmed into form was really disgraceful, and little short of a positive insult to the spectator. It is hard to understand how judges can continue to pass such glaring abuses. However, at the meeting of the Smithfield Club to-morrow morning, Mr. Valentine Barford one of our oldest flock-masters, is to bring the matter formally before the members. It is to be hoped that this will not be without some very strong effect, or the art of shearing and showing a sheep will gradually demoralize the whole agricultural community. Thimble-rigging or horse-chanting is nothing to it as one of the occult sciences."

We subjoin some exeellent remarks from the *Times*, relative to the poultry department of the Exhibition:—

"Of poultry there are 1,342 entries, and pigeons 214, or 1,556 altogether, being within three pens of the number last year—a singular circumstance, considering the variableness of the exhibiting constituency, and the wide distances between localities represented. There no longer exists a poultry mania; but the taste for domestic fowls of the most perfect feather or the greatest weight, and other characteristics of excellence besides size and beauty, is in no wise diminished. Certain it is that while the egg —that most nutritive of albuminous meat, the invalid's joint, and the indispensable component in the cook's recipe—continues to be an article of such value in the provision market; and while table fowl, roast duck and goose, and turkey—that lordly dish,—are in such popular demand, the cultivation of good breeds of poultry must always be of high national importance. We keep good horses, bulls, and rams for the advantage of our humbler neighbors' breeding; why not also benefit our rural peasantry by distributing among them chickens of the best breeds, replacing worthless by really valuable poultry, such as the Spanish or Dorkings, that would yield large profits in eggs to the poorest cottager? It is estimated that 500,000,000 eggs, worth about a million sterling, are annually exported from Ireland, and we import from France, chiefly from the Pas de Calais, also from Sardinia and Holland, a large proportion of the eggs which supply

our metropolitan market. Probably we import as many as 700 millions of eggs every year. Good layers, then, are worth having, as well as good nurses and heavy weighers. The influence of the poultry shows may be seen in any district in the truer and more valuable sorts now superseding the coarse-legged and diminutive old-fashioned barn-door birds. At Bingley-hall we witness the poultry in all their best winter plumage; accurately classified; their points of excellence or demerit reduced to a system; the most minute points as to high condition, quality, beauty of plumage, purity of race, and uniformity in the markings, combs, and other characteristics, all determined by the highest authority. Hence, notwithstanding the vast number of exhibitors from all parts of the kingdom, every cage contains almost perfect birds. Still, we find continual progress— exhibitors every year successfully following out the suggestions of the judges, and establishing higher criteria of excellence, transforming breeds, indeed, in a most remarkable manner, by dint of attentive cultivation and selection. Thus, the Spanish cocks formerly had drooping combs; the judges pronounced an upright comb the standard, and, accordingly, at the present exhibition not a drooping comb is to be found. In silver-spangled Hamburgs and Polands clear tails were insisted on, and these are now the rule. Again, while the prescribed formula is for Aylesbury and Rouen ducks to be large, Buenos Ayres and East Indian ducks are to be small, and the result is that these are shown very little larger than widgeon—so extraordinary is the power of the skilful breeder to produce almost any characteristic or quality that may be desirable in greatest excess. The silver-gray Dorking fowls, also, used to have separate classes in many exhibitions because of their small size; but this year they enter into general and equal competition with the darker birds. The greatest advance, however, is in the early maturity of the young birds shown: so that we have chickens of 1859 equal in size and weight to their parents. The developments of increase in weight brought out by this show are really extraordinary. A few years ago, a Dorking hen of 7lb. was a large bird; this year there are 10lb. hens. A Dorking cock was formerly marvellous at 9lb.; now the cocks weigh 11lb. each, and the average weight is 2½lb. per bird heavier than a few years since. A 12lb. goose was once a marvel; at the present show three birds in one pen weigh 74lb, the gander by himself weighing no less than 30lb.—2lb. heavier than the celebrated white gander of the Rev. John Robinson, a few years since. The average weight of the geese is 9lb. per bird, an improvement of fully 1lb. upon a few years back. There is a pen of four Aylesbury ducks, weighing 32lb. Six pound ducks are common, whereas 4lb. was the average weight formerly. Even Rouen ducks at this show weigh 27lb. the four birds. And Christmas caterers will be glad to learn that turkeys of 17lb. and 18lb. each are quite common, while three turkeys in one pen weigh no less than 68lb. Such an advance in size alone, besides the improvement and aptitude to make flesh, must have added immensely to our capability of supplying the poultry markets. To show that legitimate trade in first class fowls for breeding purposes is still carried on at high prices, apart from the mere fancy and factitious dealing created by the late poultry-keeping mania, take the last two years' sales in Bingley-hall.— In 1857 were sold 201 pens for £800 14s., an average of nearly £4 per pen; a Dorking cock and three hens were sold for £31 10s.; a pen of Polish at 15 guineas, and several pens at 10 guineas each. Last year 206 were sold for £850 13s. averaging £4 2s. 6d. per pen. Three pens of Cochins fetched 15 guineas each; a pen of turkeys, 15 guineas; a pen of geese, 15 guineas; and several pens 10 guineas each. So that the birds in that exhibition are probably worth as much as all the fact stock put together. The largest number of entries we find in the Dorking classes—as many as 218 pens, with Captain Hornby and Mr. Wakefield as successful as usual. The single Dorking cocks are a marvellous fine class, and so, indeed, are all the single cocks exhibited. The Spanish fowls are very numerous and perfect, showing that a breed with special egg-laying properties is becoming duly valued. The Bramahpootras are also beautiful, testifying also to the attention which is directed to fowls most profitable for their eggs, articles of consumption that we might ourselves supply to our home market without being "dependant on foreigners." The Cochin Chinas are recovering from the unmerited neglect of latter years, and, after having been run up to fantastic prices, and then as extravagantly ridiculed, are now taking the position which their really valuable properties demand. In Hamburgh fowl classes it is to be observed that the golden are very superior to the silver feathered; and the spangled Hamburghs comprise many perfect birds. The old English game fowl shows well, as usual, the entries showing that in many counties he is still exclusively the favourite with a large class of poultry-keepers. No fowls are ex-

hibited in such good plumage as the game, which is the case every year. The Malays are much improved. The Sebright bantams are beautiful, and what we say of game fowls is true also of the game bantams—purely fancy birds; the large number of entries, no less than 55 pens in this wonderfully fine class, show them to be the pugnacious little favourites of the public. The exhibition of pigeons is of high order, the carriers, pouters, trumpeters, and fantails being especially admired.

Technology and the Beautiful.—The following beautiful paragraph is taken from the report of a lecture recently given by Professor George Wilson, in the University of Edinburgh, on "Technology as a Branch of Liberal Study." The scientific world has within these few days heard with profound respect of the decease of this distinguished philosopher, whose private life was adorned by all the graces of the christian character. He was a brother of Dr. Daniel Wilson, Professor of History and the English Language and Literature, in University College, Toronto.

"The highest authorities in æsthethics, and the greatest artists, have ever protested against sham adornments, and where they were not fulfilling a purely æsthetic conception, have rejoiced in clothing with grace the most homely things. In so doing they have walked in the way of God. A multitude, perhaps a majority, of created things are not less beautiful than useful. The nodding wheat-stalk, the clusters of the vine-grape, the stately pine, the gnarled oak tree, the granite peak, are as graceful as they are serviceable ministers to our daily industrial wants. A multitude of created things—flowers and birds, and gems, and stars—are, to appearance at least, simply beautiful; not serving our utilitarian necesities, although it would be folly and impiety to pronounce them useless. The stamp of ugliness nowhere comes before us as the index of utility. Nature hastens as it were on all sides to hide away and put out of sight what is noisome in any way, or unwelcome to the senses. Nay, she does more than conceal offensive things; she changes them, while she uses them, into forms of beauty. The daisies grow thickest over the graves of the dead. The battle-fields of Inkermann and Balaklava have long been distinguished only by the multitude of the flowers that spangle their thick grass. Already Solferino is growing green again, and except that the mulberry will wear in spring a richer foilage, and the silk-worm revel more greedily on their leaves, you will look in vain for traces of the awful slaughter.—If human industrialism cannot often imitate this divine example, it is want of skill and want of wealth, much more than want of will that occasions the failure."

A FRENCHMAN'S CHARACTER OF JONAS WEBB.

(From the "Revue Agricole de L'Angleterre" of F. R. De la Trehonnais, translated expressly for the "Mark-lane Express.")

Amongst the men who have best served the cause of agricultural progress in England there are, perhaps, none more illustrious than Jonas Webb. This eminent breeder is not only remarkable for the success which has crowned his life-long efforts in the breeding of Southdowns, but still more so for his agricultural practice in general, and, above all, his rearing of the Durham race. I shall say nothing here of his private qualities; all those who have the good fortune to know him in private life, agree in their appreciation of him as a father of a family, and a citizen; and the renown of his domestic virtues, and the general esteem in which he is held, suffice to give an idea of the excellence of his character to those who know him only by reputation. It is only of those who are no more, that we can say all we think, for eulogy of private life is eminently a posthumous work; and the respect we owe to the modesty of worthy men is quite as imperious as the meed of justice we desire to render them. It is therefore in a purely agricultural point of view that I undertake to sketch the life of Jonas Webb. He has succeeded in the accomplishment of the end at which he aimed; and this success, by the importance of its application to rural economy, belongs to entire humanity; and I believe I accomplish an eminently useful task in briefly depicting the principal traits of his agricultural life, in order to derive from it those invaluable lessons taught by his practice and experience.

Jonas Webb was born the 10th November, 1796, at Great Thurlow, in the county of Suffolk, on the confines of Cambridgeshire. He was the second son of Mr. Samuel Webb, a venerable veteran in agriculture, who died at the age of ninety-three,

free from infirmity, and enjoying to his last hour the use of his faculties.

In this family the career of agriculture has been an heir-loom, transmitted from generation to generation. Jonas Webb has four brothers, who, like himself, are farmers. He has four sons, of whom three also are agricultnrists. One of them, the oldest, succeeded his grandfather, and conducts the farm so long occupied by the old patriarch.

It was in 1822 that Jonas Webb commenced his agricultural career, by taking the Babraham Farm, where he has always remained. Trained in the school of his father, who was already noted for his intelligent method of rearing the old Norfolk breed of sheep, he soon attached himself to the breeding of Southdowns, which he immediately began to improve. Following the principles of Bakewell, the object he had in view was to form animals for meat. Before his time, the ovine race of the country was the old Norfolk breed, like that which his father reared. Mr. Webb rejected it as incapable in itself of improvement; for all the efforts of his predecessors had failed. This race had the dorsal spine projecting, the sides flat, the reins narrow, the chest little developed, and the thigh short, and far removed from the ham. It, therefore, presented none of the conditions essential to the constitution of the races for the butcher. The results already obtained by Mr. Ellman, the example of the Earl of Leicester, who had also not only rejected the Norfolk breed, but even that of Bakewell, contributed, probably, to determine him in choosing the Southdowns in preference to every other breed. But what exercised the greatest influence over his choice were the numerous experiments made by his father on a great number of different races. The result of these experiments was to convince the son, that the Southdown breed produced per acre more meat, and wool of a better quality, than any other on nine-tenths of the surface cultivated in England, where it is the custom to fold the sheep on the land, especially where the soil is not naturally fertile.

Urged by this conviction, and strong in the experience he had acquired under his father, Jonas Webb went into the county of Sussex, the native country of the Southdowns, and there he purchased, regardless of price, the best rams and ewes he could procure. Such is the origin of that famous flock of Babraham Downs; there were no others, for Mr. Webb assures us himself, that he has never since introduced into the blood of his stock any other element of reproduction, and that all his Southdowns come direct, and without mixture, from the first breeders that he purchased in 1822. Thus the merit of having fixed the eminent qualities by which the Babraham flock is distinguished belongs exclusively to Mr. Webb himself. For having taken his elements from the aboriginal race, as it then existed on the Sussex Downs, he has been enabled, without having recourse to other rams than those of his own flock, that is to say, by a process essentially in-and-in, to creat first, and then to fix in his products, qualities till then unknown in that race, and which no other has yet equalled. It was in 1840 that Mr. Webb began the series of triumphs in the competitions. That year the Royal Agricultural Society held its annual exhibition at Cambridge, and Mr. Webb sent thither some of his animals, which gained for him the first prize for sheep and lambs intended for breeding, and also that for ewes fifteen months old. At this meeting, all the short-woolled breeds competed with each other, and it is the only time that Jonas Webb has exhibited ewes from his flock. I shall give presently the reasons which induced him not to exhibit his sheep for competition. Since that period he has only exhibited rams.

To enumerate all the prizes carried off by Mr. Webb since 1840, would be too long and monotonous a task. It is sufficient to say that since that period he has received only two checks in the competition where he has exhibited. The first took place at the great Exeter meeting, in 1850, and the second at Chelmsford, in 1856. On these two occasions he had reason to think that the decision of the judges was not founded on a just appreciation of the qualities of his animals, and he determined to present his beaten rams at the following meeting, and in the two instances the results fully avenged him for his defeat. In 1851 he presented the unsuccessful of the Exeter meeting at that of Windsor, and took the first prize. In 1857 he exhibited at Salisbury the vanquished at Chelmsford, with a similar result; that is to say, he triumphed there also, over every opponent. Since 1851, after his first revenge, he exhibited no more till 1856, at Chelmsford, where, as I have just said, he was beaten by Mr. Overman. This defeat occasioned his revenge at Salisbury, in 1857; but since that period he has no more competed.* In 1855 and 1856, we know with what success he presented himself at the Universal Exposition at Paris. At that

*Mr. Webb re-appeared at Warwick, where he was beaten by the Duke of Richmond.—Ed. M. L. E.

of 1855 the Emperor came himself to admire his beautiful animals, and congratulated him on his success. It was on that occasion that Mr. Webb offered the Emperor his prize ram, for which he had refused a fabulous sum. The Emperor accepted this splendid present, and some time after sent the generous breeder a splendid chandelabra in massive silver, representing an old oak under which is sheltered a group of horses at liberty.

The ovine race of Jonas Webb is now disseminated throughout the whole world. The French Government, the Emperor himself, and a great number of the proprietors of France, and of every other country in the world, have made numerous purchases of them. Amongst these last, Mr. Allen, the zealous director of the ancient colony of Petit-Bourg, has imported into France some of the finest types of Mr. Webb's flock.

I have stated above that after the Cambridge meeting, in 1840, Mr. Webb had determined not in future to exhibit any ewes. The following are the reasons that induced him to adopt this resolution:

It is well known that one of the most unfortunate effects produced by competition—perhaps the only one—is to display the tendency of certain breeders, and certainly almost all exhibitors, to load their animals beyond measure with fat, in order to give them a better shape. The consequence of this system is almost always fatal to young animals intended for reproduction, especially the females; and Jonas Webb had very soon acquired fatal experience of it. In preparing for the Cambridge meeting, he did what all the competitors practised—he fatted his sheep excessively. They undoubtedly bore off the honours, but he paid dearly for them. Out of nine ewes in lamb exhibited, four died after yeaning dead lambs; and out of the products of the others, he saved only two or three lambs. At the Derby meeting, in 1843, the Babraham flock, as before, carried away the first prizes; but this new triumph was again fatal, for it occasioned the death of the two best rams intended for competition; they were killed before the meeting, their fat having rendered them useless.* These two animals were two-shear sheep, and had received an honourable mention at the preceding meeting at Bristol, where Mr. Webb had refused to let them for the season at £180, having intended to reserve them for the use of his own flock. During the season preceding the Derby meeting, they produced absolutely nothing, and they were consequently sent to the butcher. From that period Mr. Webb exhibited only ram lambs, for fear of destroying his best rams over two years old by excessive fatting, that was more fatal amongst them than amongst the lambs, which found in the abundance of food an element probably favourable to the development of their growth and the sustentation of their utmost activity.

Mr. Webb's flock consists of seven hundred breeding ewes, with a proportionate number of lambs. The number of rams is about four hundred, of different ages. It is from these rams that the animals are selected that are let by Mr. Webb at Babraham every year, which are sent into every country in the world. This annual letting takes place in the month of July, a few days before the general meeting of the Royal Agricultural Society. Last year was the thirty-second letting. It is a proceeding regarded in England as a public event, and all the journals give an account of it with the most exact care, assembling from every country, and even from foreign countries. The sale begins about two o'clock. A circle is formed with ropes in a small field very near the mansion, where the rams are introduced; and an auctioneer announces the biddings, which are frequently very spirited. The rams to be let are exposed round the field from the first of the morning, and a ticket at the head of each pen indicates the weight of the fleece of the animal it contains. Every one takes his notes, chooses the animal he approves of, and can demand the last bidding when he pleases. The evening after the letting, the numerous company assemble under a rustic shed ornamented with leaves and agricultural devices. There tables are laid, round which are placed two or three hundred guests; and then commences one of those antique repasts described by Homer or Rabelais. In other respects, the house is opened to all comers. The tables groan under the weight of enormous pieces of beef, gigantic hams, &c., which have almost always disappeared before the commencement of the sale. From eight in the morning until two in the afternoon, tables laid out in the hall and dining-room are furnished only to be refurnished immediately, the end being equal to the beginning. The consumption of meat, bread, strong beer, and port and other wines, on these occasions, is almost incredible.

At the dinner, in the evening—when the

*The translator's father (in 1807) purchased a splendid Leicester ram of a tenant of Mr. Coke's, afterwards at the Holkham sheep-shearing, where it was exhibited. He put this ram to 100 ewes, and the produce was "one very poor lamb." The ninety-nine ewes failing were fattened the next winter for the butcher; and "Mr. Leicester," as the aristocratic ram was called by the labourers, met a similar fate, being like Jonas Webb's perfectly useless.

appetite of the guests is somewhat satisfied, and the bottle has begun to circulate—the president rises, and inaugurates a speech in praise of Old England in general, and of every Englishman in particular, commencing with the Queen, Prince Albert, the Prince of Wales, and all the royal family: with an interminable series of toasts, in which extravagant compliments are lavishly bestowed. I have, however, always observed that the replies made by Jonas Webb, upon his health being drunk, are characterized by great modesty and good taste, that contrasts agreeably with the redundant and set phrases of the president's speech.

The average prices of the lettings of Mr. Webb's rams during the thirty-two years is nearly £24 sterling each; but there were rams that have let for £180.

The weight of the fleeces of the Babraham flock averages 5½lbs., and that of the rams 8½lbs., after the sheep have been washed.

Besides the celebrity Mr. Webb has acquired by his rearing of Southdowns, his farming at Babraham is not less remarkable for the splendid herd of Durhams he has collected. It was in 1838 that he began to rear this invaluable bovine race. At that time he purchased two cows of Mr. Alison, of Bilby, in Nottingham; and a short time after he made the acquisition of the celebrated cow "Dodona," belonging to the herd of Lord Spencer. It appears that this great breeder had despaired of making her reproduce; and it was on account of this supposed sterility that he parted with her in favour of Mr. Webb, who took her to Babraham, and, having probably subjected her to a more intelligent treatment, she produced successively four calves, and thus formed one of the most valuable herds of the Babraham herd.

At the sale of Mr. Beauford, at Blitsoe, in Bedfordshire, Mr. Webb purchased his celebrated cow "Celia," daughter of the famous bull "The Third Duke of Northumberland," bred by Bates. It was to this remarkable cow that a great number of the finest of the Babraham herd owe their origin. A short time ago two of her granddaughters were sold for £472 12s. 6d. sterling.

At the Wiseton sale, Mr. Webb purchased some other celebrated cows of the herd of Lord Spencer; and at that of Lord Ducie he bought "Boddice," daughter of "Usurer," and the bull "Cheltenham," son of the famous "Duke of Gloucester," from whence sprung the most estimable animals of the Babraham herd. The cow "Boddice" was in calf by the "Duke of Gloucester," when Mr. Webb purchased her at the sale at Tortworth; and she produced a heifer, which is now one of the finest cows in England. He has been offered £320 stg. for her, but he refused to sell her.—Amongst the other principal bulls employed by Mr. Webb, and whose blood prevails in his herd, we note "The Minstrel" (8687), son of "Battus" (7816), and the famous cow "Bessy," sister of the celebrated "Buttercup" of Mr. Towneley's herd.

At the Hendon sale, Mr. Webb obtained new elements of perfection from the herd of Mr. Tanquery; and at the present time his breed of Durhams is certainly one of the most considerable in the whole world, and yields perhaps in beauty and perfection only to that of Mr. Richard Booth and that of Mr, Towneley. When Mr. Strafford, the editor of the English "Herd Book," decided to publish the last volume of that collection, Mr. Webb sent for insertion a list of sixty one cows with their products. He has always some twenty or thirty bulls in his stalls.

I shall say a few words on Mr. Webb's system of farming. His occupation is very large, something like 2,500 acres, and his crops are always splendid. He has assured me that his farming has always yielded him a profit. This assurance is the best proof of his skill in husbandry that can be given. I add, that he is a member of the Council of the Royal Agricultural Society of England, and president of the Nitro-phosphate-of-lime Company, of which material he employs immense quantities in his cultivation, and attributes to it the best results. His name alone, allied with this manufacture, is sufficient to guarantee its respectability. In the last place, I think I may say that Jonas Webb has amassed a considerable fortune, which he owes entirely to his industry and skill. There exists no person who has gained the esteem and good will of his cotemporaries in a higher degree than Mr. Webb. His probity, his scrupulous good faith, his generosity, and the affable equality of his character, have gained for him the respect and affection of every one. Since I have had the honour of knowing him, which is already many years, I have never known of his having a single enemy; and in my constant intercourse with the agricultural classes of England, I have never heard a single malevolent insinuation respecting him. When we consider how much those who raise themselves in the world above others are made the butt for the attacks of envy in proportion with their elevation, we may conclude that there are in the character of this wealthy man very solid virtues,

well fixed principles, transcendent merit, to have passed through his long career of success and triumphs without having drawn upon himself the ill-will of a single enemy or the calumnious shaft of envy.

Unprecedented Loss of Cattle.—Messrs. Editors:—In accordance with your request I have to state that the disease now prevailing in my herd is that known as "*Epizootic Pneumonia*,"—a disease comparatively rare here, but which has prevailed to an alarming extent in Russia, Austria, Germany, and some portions of Great Britain. The first case upon my farm was of a Dutch cow imported in May last, one of an importation of four cows, two of which died in a few days after arrival here, as was supposed, in consequence of neglect on the voyage; the third animal seemed to be doing well for about four weeks after, when she was prostrated by the above disease, and died in about ten days. The next case was a Dutch cow, imported in 1852, and, of course, perfectly acclimated; she died in August, about two months after the first cases. Symptoms of the disease about the same time appeared in other animals, and down to this time I have had some thirty cases, twenty-four of which have proved fatal. It attacks animals of all ages, but seems most fatal with milch cows.

The disease first shows itself by loss of appetite, a hard dry cough, ears cold and drooping, grinding of the teeth, the eyes presenting a dull look, the animal appearing languid and dejected, loses flesh and strength very rapidly, and, if a milch-cow, soon becomes dry; disease progresses, the breathing becomes more and more difficult, the animal making a sort of grunt at every respiration; fœtid matter is discharged from the eyes, mouth and nostrils—the breathing becomes still more difficult, until in the last stages the animal stands with the nose elevated almost on a line with the back, and the mouth open. In some two or three cases, the animals have become much swollen after death.

I am happy in being able to state that my favorite stock, the Dutch, have proved more hardy, and show a much greater power of endurance than any other breed. The only milch cows that have recovered so far, are two of my imported Dutch stock.

W. W. Chenery.

Wellington Hill, Nov. 7th, 1859.

Mr. Chenery stated, in answer to an inquiry, that the cash value of the twenty-four head which have died was $4000; and the loss in view of his plans in experimental breeding, he placed at nearly twice that sum.

An English writer, treating of the Epizootic pneumonia, says, "The disease requires eminently knowing treatment from beginning to end, and cannot be managed by a mere ordinary cow-doctor, and even if properly treated at the outset, is liable to be most mischievously treated as it proceeds. Every cattle-owner ought to adopt the precaution of promptly and effectually separating the sound portion of his herd from any beast that may have become effected, and of keeping his whole herd away from the vicinity of a neighboring farm on which the disease has appeared." —*Boston Cultivator.*

A New Race of Cattle from an Old One.—We see it stated in some of our exchanges that a Belgian paper, the *Le Nord*, says that M. Dutrone, one of the most distinguished cattle-breeders of France has succeeded, after twenty years trial, in producing a bovine race without horns which carried the first prize at the great Cattle Show of Poissine in 1854.

Mr. Dutrone probably slyly borrowed some of the Galloway blood from his neighbors in Scotland with which he beguiled his Dutch friends into the belief that he manufactured it by his superior skill in hornological operations. The paper goes and states that a cow of this species, which had been raised on the farm of the king of Belgium, at Lacken, near Brussels, was killed in the presence of the professors of the veterinary school and the surveyors of the public slaughter house. They reported that the quantity, both of suet and meat, was much more considerable than that of ordinary cattle.

As far as the suet is concerned this is characteristic of Galloways. They give more suet according to their size, and a far better quality of meat than some other breeds.

Irish Landed Estates Court.—The purchases in the Irish Landed Estates Court made by English or other speculators are far exceeded by the investments of Irishmen—the cash expended by the latter being as six to one of that belonging to the former. This is satisfactory in various aspects; it proves the prosperity of the people—that they have been amassing wealth, and that they prudently secure it in the best possible manner; and it indicates a confidence in the settled order of things.

Vermont Sheep and Wool.—It is scarcely half a century since the Merino sheep could be said to be fairly estabtished in America; yet it has for some time formed the basis of one of the most important branches of our agricultural interest—wool-growing. In its acclimation, the breed has undergone more or less change. and in no section, perhaps, has this change been more beneficial than in Vermont. The sweet and generally abundant herbage of that State, with the pure and healthful air of her mountains, has gradually wrought the Spanish Merino into a different animal in some respects, from what it was on its first introduction. The constitution has become more robust, the carcase increased in size and improved in symmetry, the fleece greatly increased in weight, while in the hands of skilful breeders the staple has lost nothing of its original qnality. So obvious have been these improvements, that the Green Mountain State has of late constituted a nucleus, from which many sheep have been annually drawn for the improvement of flocks in other parts of the country, or for the formation of wool-growing colonies in our Western States, in Texas, California, and Oregon. We believe that with due attention, the farmers of that State may maintain, and even improve those qualities in their sheep which have given them so deserved and wide-spread a reputation, and that the favorable position they have attained in a pecuniary view may be continued.

In this connection we would acknowledge the reception of samples of wool from the following parties, many of whom will be recognized as among the most successful sheep-breeders in Vermont:—Isaac T. Parris, Victor Wright, Loyal L. Wright, F. W. Baldwin, Levi Peck, Anson Woodward, J. A. Williams, John Preston, Seymour Harwood, Loomis Root, J. B. Harwood, John F. Clark, Amos Spring, German Cutting, Isaac Jackway 2d, John O. Hamilton, Augustus Farnsworih, Cephas D. Sweet.

We shall be pleased to show the samples to any persons who may wish to examine them.—*Boston Cultivator.*

Uniformity in a Breed of Cattle.—In attending cattle-shows in England, we were particularly struck with the uniformity of the Herefords and Devons as compared with the Short-horns. According to the *Mark Lane Express*, this characteristic was very apparent at the late show of the Herefordshire Agricultural Society. It is said—"Nowhere could such a scene be commanded. It was one continual throng, or drove, or group of cattle, but all of the same uniform stamp and character. To the stranger, indeed, it became somewhat of a question whether, if an animal did break away from his own lot, his owner would ever be able to again identify him. ..... With all our experience of the Short-horns in Yorkshire, and the Devons in their own native county, we never witnessed such a distinct race of animals, exhibited in such numbers, with so much uniform excellence, and general characteristics of their kind. The strength of whole herds, moreover, was called for. There was scarcely an exhibitor that depended upon any one picked animal or so. The very rules and conditions of the Society are very peculiar in this respect. It offers a series of premiums not merely for a bull, but for a bull, a cow, and their *produce*, all in one entry. It stipulates for breeding cows to be shown in lots of twos, threes, fours, or fives, according to the sizes of a man's holding. Feeding beasts are got together in the same way, and there are prizes for 'pairs' of heifers and steers of every possible age they could enter at. Indisputably, there never was a fairer way of testing what a herd, or even a breed was equal to."

Horticultural.

HORTICULTURAL HINTS AND MEMORANDA FOR JANUARY.

"For never-resting Time leads Summer on
To hideous Winter, and confounds him there;
Sap checked with frost, and lusty leaves quite gone;
Beauty o'er-snowed, and barrenness everywhere."

The severity of our Canadian winters puts a stop to all working operations in the garden. Very little can be done this month, except getting a good supply of well-rotted manure drawn on to the ground, for spring work; putting all *tools* and *implements* in thorough order, repairing *hot-bed* sashes and frames, and collecting stable manure for early forcing—on which proper directions will be given next month. Old *Apple* Trees covered with moss should be thoroughly scraped, and well washed with a strong solution of *Ley* and Flour of Sulphur; all young orchard trees should have the snow well treaded round the stems, to prevent the depredations of mice from barking the trees.

GREEN HOUSE.

The management of this department requires, at this season, particular attention, to preserve the plants in good health, and carry them through the next two months. When the weather will admit, give a little

air to the house, by letting a few of the top sashes down a few inches during the middle of the day, which will be found to be very beneficial to the health of the plants. With regard to the temperature for common green house plants; it should not be more than 50°, during the night, and from 55° to 60° during the day, with sun heat. Care is reqnired in watering plants during the winter months; no plant should get water except the soil in tbe pot is becoming dry. Succulent plants, such as cactus, *Aloes*, &c., require very little water at this season.

PLANTS AND FLOWERS IN ROOMS.

Plants that are kept in rooms are generally such as require a temperature from 45 degs. to 55 degs; a higher temperature will draw them up and weaken them. The best situation for house plants is a room with a good large window fronting the South, and adjoining a room or hall where there is a fire kept; when air is given it should be admitted from the top of the window for a short time during the middle of the day.

Insects such as the *Aphis* or *Green Fly*, are very destructive to plants if not speedily removed; the general mode of killing them is by fumigation with tobacco, but as it might not be agreeable to fumigate the room, the following method may be adopted with safety,—take two plugs of common *Tobacco*, infuse in one quart of boiling water for two hours, take a small wash tub that will hold four gallons of water, put the infusion of tobacco into the tub, then invert the plant holding the hands over the soil in the pot. Put all the branches and folige in the water, keeping the plant in the hand, drawing it well through the water, take it out and sprinkle a little clean water over it, and if any insects are remaining give it another dip; this application, if well done, will keep the plants clean for one month.

DRAINING.

All plants grown in pots should be well drained at the bottom, with bits of broken pots, &c. Worms are sometimes very destructive to the roots of Flowers in pots. When their casts are seen on the surface of the soil, no time should be lost in cleaning them out. Stop the bottom of the pot up for a short time, and water the soil well with clear lime-water, which will kill all the worms, and will not injure the plant.

SOIL.

A general soil suitable for most kinds of Common Green-house and Soft-wooded Plants, may be made as follows:—three parts of good black or yellow loam, from the surface of an old meadow; one part of well rotted cow dung; one part of good sharp sand: mix all well together, and sift through a half inch riddle before using. It is a very common fault to put plants, kept in rooms, in too large pots; or, as the gardeners term it, over-potting them. The effect of over-potting is to produce leaves with very few flowers. The way to ascertain when re-potting is necessary, is by turning the plant out of the pot, with the ball of earth attached, and if the roots are round the outside of the mould, then the plant should be put into a pot a size larger, and afterwards the plant may be re-potted again, but only into a pot a size larger than it was in before. Plants treated in this way will grow well, and produce abundance of flowers.

J. F.

Miscellaneous.

Railway Statistics of Canada.—The Board of Railway Commissioners of Canada have published in the form of a Blue Book, the report of Mr Samuel Keefer, Inspector of Railways, dated Toronto, February 28th, 1859, for 1858, a copy of which we have received. The report is elaborate. Mr Keefer's introductory remarks occupy thirty-one pages. In addition there is a voluminous appendix, containing minute additional details relative to the Railways of Canada, at once useful and interesting.

This is the first report that has been made by Mr Keefer since the passage of the Accidents on Railways Act in 1857. The act, he says, was passed too late to enable him to complete a report that year.

At the time of the passing of the act, in 1857, there were 1,402 miles of railways in operation in Canada; Great Western and its branches, 279; Grand Trunk, (in Canada,) 685; the Northern, 95; Buffalo, 144; London and Port Stanley, 24; Erie and Ontario 17; Cobourg and Peterboro', 28; Prescott and Ottawa, 53; Montreal and Champlain, (in Canada,) 81; Grenville and Carillon, 13; St. Lawrence and Industry, 12.

In 1857, after the passing of the act, 70 additional miles of railway were opened in Canada: the Galt and Guelph, 16 miles; Preston and Berlin, 11; Port Hope and Lindsay, 43.

In 1858, 140 miles were opened: Buffalo and Lake Huron—Strattord to Goderich, 45; Port Hope, Lindsay and Beaverton—Millbrook and Peterboro' Branch, 13; Great Western—Sarnia Branch, 51.

Altogether at the close of 1858 there were 1,612 miles open in Canada, besides the branches in the United States connecting with them, and controlled from this side the lines, as the Grand Trunk to Portland.

Mr Keefer says it is worthy of remark that Canada has now more miles of railway open than Scotland or Ireland, or of any of the six New England States; more than the three Atlantic States of New Jersey, Delaware, and Maryland, or the two Carolinas, North and South, and is only exceeded in the number of miles open by the five following States:

New York, which has	2726 miles.
Pennsylvania	2678 "
Ohio	2978 "
Indiana	1939 "
Illinois	2774 "

1465 miles of the Railways in Canada have the Provincial medium guage of 5 feet 6in; and 147 have the narrow guage of 4 feet 8½ inches.

Mr Keefer says:—

There are now in course of construction no less than seven lines or sections of Railway, of which, in all probability, about 327 miles will be completed and opened for traffic in the course of this year. They are:—

1. The Grand Trunk—St. Mary's to Sarnia	70 miles
2. The Grand Trunk—St. Thomas to R. DuLoup	78 "
3. The Grand Trunk Junction at Victoria Bridge	6 "
	154 miles
4. Brockville and Ottawa—to Perth and Land Point	86 "
5. Stanstead, Shefford and Chambly —St. John's to Stukely	45 "
6. The Welland	25 "
7. The Hamilton and Port Dover— Hamilton to Caledonia	17 "
In all	327 miles

Several of the above sections have been already finished.

We further gather from the report that—

The average speed of express trains, including stops, is 26 miles per hour; and in motion between stations, 35 miles per hour. The maximum speed is got upon the Montreal and Quebec division of the Grand Trunk Railway, which is 36 miles an hour. The average speed of accommodation trains is 22 miles per hour, including stops, or 27 miles when in motion. The average speed of mixed trains is 15 miles, including stops, and 19 miles when in motion. The average rate of freight trains is 13 miles including stops, and 19 miles when in motion. The total number of locomotive engines upon all the roads, at the end of 1858, was 336. The following table shows the amount of rolling stock of the several classes:—

	Number.	Per mile of road.
Locomotive engines	366	0.23
First-class passenger cars	213	0.14
Second-class passenger cars	122	0.08
Box mail and express cars	112	0.07
Box freight and cattle cars	2,477	1.58
Platform cars	1,841	1.17
Construction cars	1,063	0.67

Of the locomotives, the Portland Company have furnished 52, the Amoskeag Works 48, the Schenectady Works 32, the Boston Works 23, Lowell and Manchester each 12, Philadelphia 10, and other United States Works 20; Messrs. Peto & Co., 50, Fairbairn 12, Stothert and Slaughter (Eng.) 20, and other English builders 28. Canada has built 47. Of the whole number, the shops of the United States have furnished 209, England 110, and Canada 47.

The total number of miles run by passengers trains in 1858, was 1,735,821 miles; by mixed and freight trains 1,671,137; by wood and construction trains 878,648; by all trains 4,532,742; the total number of passengers was 1,613,935; the total number of miles travelled by passengers was 91,027,299.—*Mont. Gazette.*

Wealth of Brazil.—The diamond mines of Brazil continue to contribute largely to the mineral wealth of the world. A few days ago, the Royal Mail steamer ***Tyne*** left Rio for Southampton, having no less than $750,000 worth of diamonds, collected within a very brief space of time from the exhaustless treasures of Brazil. The greater part of this shipment is from the celebrated mines of Serrado Frio, a rocky barren locality, which is guarded with vigilance. In 1851, a diamond weighing no less than 1382 carats, was taken from Frio, and at different periods since, very large ones have been found there. Indeed, few nations send more of these stones to England and the United States than this, a fact not many often think of when admiring breastpins and bracelets.

Something New.—A File and Sickle manufactory has been established in Dundas, C. W. We are told that the files which are re-cut in that establishment are equal, and in some cases superior to many classes which are imported, while the saving to the consumer is considerable.

Property of the Hudson's Bay Company.—The capital employed by the company is £1,265.068, and consists of stock standing in the names of the proprietors, £500,000; valuation of the company's lands and buildings, exclusive of Vancouver's Island and Oregon, £318,884. Amount expended up to September 16, 1856, in sending miners and laborers to Vancouver's Island, in the coal mines and other objects of colonization, exclusive of the trading establishments of the company, and which amount well be repayable by the government if possession of the island is resumed, £81,071. Amount invested in Fort Victoria and other establishments and posts in Vancouver's Island—this amount is not exactly ascertained—estimated at £75,000. Amount paid to the Earl of Selkirk for Red River settlement £85,111. Property and investments in the territory of Oregon ceded to the United States by the treaty of 1846, and which are secured to the company as possessory rights under the treaty, $1,000,000—say £200,000. The distribution of profits to the shareholders for the years 1847 to 1856, both inclusive, have been: 1847, 10 per cent; 1848, 10 per cent; 1849, 10 per cent; 1850, 20 per cent, of which 10 per cent was added to stock; 1851, 10 per cent; 1852, 15 per cent, of which 5 per cent was added to stock; 1853, £18 4s 6d per cent, of which £8 4s 6d was added to stock; 1854, 10 per cent; 1855, 10 per cent, and in 1856, 10 per cent. The price of stock ex-dividend was:—July, 1847, £200; 1848, £200; 18 9, £200; 1850, £210; 1851, 210; 1852, £215; 1853, £225; 1854, £210; 1855, £207½; 1856, £200. Out of 268 proprietors in July, 1856, 196 purchased their stock at from 220 to 240 per cent. —*London Times.*

Source of the Nile.—The great problem of the source of the Nile, which has occupied the attention of the world during so many ages, may now be considered as definitely solved. Capt. Speke, who has just returned to England from an extended tour in Central Africa, in company with Capt. Burton, discovered a lake, called by the natives Nyanza, but by the Arabs Ukerewe, which appears to be the great reservoir of the Nile. It extends from 2 deg. 30 min. south, to 3 deg. 30 min. north latitude, lying across the equator in east longitude 33 deg. Its waters are the drainage of numerous hills which surround it on almost every side. The new lake washes out the Mountains of the Moon, as present existing in our atlases.

Coal and Health.—During the season of summer, when the atmosphere is warm and balmy, the cheerful breezes have free scope to dance through all our apartments, and ventilation is effected upon natural and conclusive principles. The time, however, is at hand, when the approach of cold weather, when doors and windows must be closed to shut out the piercing wind, and when fires must be maintained in all dwellings to heat our sensitive frames. This is the season when means should be adopted for securing the requisite amount of the pure air of heaven, under all the circumstances of artificial heating, in every dwelling—public and private.

The importance of ventilation is generally recognised, as the evils that have been caused by dwelling in ill-ventilated apartments have been set forth in various publications. There are some facts, however, connected with this question, which are not so well understood. Thus, many persons mistake warm for impure air; hence they do not make a distinction between the two, and do not seem satisfied that a room is habitable until they have expelled all the warm air from it. There can be no question, we believe, about the salubrity of warm dwellings in cold weather, if the air in them is only maintained in a pure condition. The circulation of air in a room is dependent upon the heat which is generated in fires, grates, stoves or heaters. The hot air expands, rises, and seeks vent, and the cold air rushes in to supply its place. The grand secret of good ventilation, therefore, is a plentiful supply of fuel—an important fact too generally overlooked. The houses of the poor are kept close and ill-conditioned in cold weather, because the inmates cannot provide sufficient fuel for their wants. Coal is as much an article of life and health, in the winter season, as food, and yet how few think of this! In those churches, schools and other public buildings, where fuel is saved at the expense of an inefficient supply of fresh air, a cent-wise and dollar-foolish economy prevails; and this is the principle idea we wish to impress upon the public mind at this time. Arrangements for ventilation may be made in endless variety; but without an abundant supply of fuel, neither comfort nor proper ventilation will be secured. Fuel is to ventilation, in cold weather, what steam is to an engine—its governing power.—*Scientific American.*

Gold Returns.—$1,400,000,000 is the grand total of the amount of gold brought from California and Australia, during the last ten years.

How to make a Smoke-house.—No farmer should be without a good smoke-house, and such a one as will be fire-proof and tolerably secure from thieves. Fifty hams can be smoked at one time in a smoke-house seven by eight feet square. Mine is six by seven and is large enough for most farmers. I first dug all the ground out below where the frost would reach, and filled it up to the surface with small stones. On this I laid my brick floor in lime mortar. The walls are brick, eight inches thick, with a door on one side, two feet wide. The door should be made of wood, and lined with sheet-iron. For the top I put on joists, two by four, set up edgewise, and 8½ inches from centre to centre, covered with brick, and put on a heavy coat of mortar. I built a small chimney on the top in the centre, arching it over and covering it with a shingle roof in the usual way. An arch should be built on the outside, with a small iron door to shut it up, similar to a stove door, with a hole from the arch through the wall of the smoke-house, and an iron grate over it. This arch is much more convenient and better to put the fire in, than to build a fire inside the smoke-house, and the chimney causes a draft through into the smoke-house. Good corn-cobs, or hickory wood, are the best materials to make a smoke for hams. The cost of such a smoke-house as I have described, is about $20.—*Rural New Yorker.*

New Copper, or Bronze Coinage in England.—Preparations are being made in England for the issue of a new coinage of a bronze alloy, to replace the existing copper coinage. The engines to drive the stamping presses, and also the boilers needed for the purpose, have been constructed, and have been forwarded to the works of Messrs- R. Heaton & Sons, of Birmingham, who have executed all the copper coins struck for England for many years, and who also successfully competed for the execution of the new French currency issued by Napoleon III. It is expected that two or three years, at least, will be needed for getting in and replacing the existing copper coinage.

Horse Shoes of Gold.—There was lately on exhibition at Sidney, Australia, a set of horse shoes made of native gold, weighing 24 ouuces, and worth about $500. They were made for a favorite pony in New South Wales.

Earthquake.—St. John (N.B.) papers notice an earthquake on the morning of the 26th October. The houses shook with the vibration.

To Make an Obstinate Horse Pull.—A correspondent of the *Cotton Planter* says: "Let me tell you of an infallible method of making a balky or obstinate horse or mule pull up a hill or anywhere else that his muscles are able to carry him. Take a small rope, (a plow line for example,) double it, make a loop of the double end, and draw it snugly around the under jaw of the animal, just behind his front teeth, with the loop underneath. Throw the loose end over your shoulder, and 'walk in the way he should go,' holding fast and pull steadily and firmly. Don't be troubled about him, for he will follow without fail, after he has discovered how you have got him. This will also compel an animal to stand quiet to receive the bridle or collar."

Hair Brushes and Combs—Children should be taught, from their earliest remembrance, the importance of keeping the hair clean, not so much by the use of the comb as the brush. Two sorts of combs are used, fine and coarse, made either of ivory or bone; when the brush has been well used, there is seldom any necessity for the fine-tooth comb; and the intention of using the coarse comb is merely to disentangle the hair and prepare it for the brush. Nothing is more injurious to the skin of the head than the frequent application of the small-tooth comb, the points of the teeth of which scratch and otherwise irritate the scalp, tending more than any other cause whatever to the formation of the scurf. It cannot be too strictly impressed upon the minds of parents, if they would see their offspring blessed with a good head of hair, to refrain as much as possible from the use of the small-tooth comb; a moderately hard brush is quite sufficient to keep the head and hair clean, and should be used the first thing in the morning, on account of the hair being more supple at that time than any other. When children suffer from a scurfy head, the following wash used occasionally will remedy the evil at once, and will eventually cure the complaint. Take of salts of tartar, four drachms; tincture of catharides, twenty drops; spirits of camphor, twenty drops; lemon juice, half a pint. Dissolve the salts of tartar gradually in the lemon juice, till the effervesence ceases; then add the other ingredients, and after leaving it exposed to the air for a short time, it may be perfumed and bottled for use. This is the finest and most innocent hair-wash that can be made.—*Scientific American.*

Over 20,000 men are employed in lumbering on the Ottawa.

Editorial Notices, &c.

ILLUSTRATED ANNUAL REGISTER OF RURAL AFFAIRS, FOR 1860. ALBANY, N. Y.: *Luther Tucker & Son.*

This useful annual, edited by J. J. Thomas, and published by the enterprising firm of Tucker & Son, the publishers of those very valuable agricultural papers, the *Country Gentleman*, and *The Cultivator*, increases in interest and utility every year. Here we have a volume of 130 pages, very neatly printed on good paper, with 180 engravings on the most interesting matters pertaining to agriculture—gardening and rural affairs generally, for the insignificent sum of 25 cents! No farmer imbued with the true spirit of his pursuit, but would find this little annual a most useful and interesting remembrancer.

THE RURAL ANNUAL, AND HORTICULTURAL DIRECTORY. JOSEPH HARRIS, *Office of the Genesee Farmer*, 1860.

This too is an annual, and of a similar character to the above, being of the same size and price, and profusely illustrated, particularly in Horticultural matters, and insects affecting garden and farm crops.—Although these two publications occupy common ground, embracing such subjects as are characteristic of rural life, the articles of which they are made up are of course different. And we feel that we shall be doing a good service to our readers by recommending them to purchase *both;* assuring them that they will never repent of their bargain.

Market Intelligence.

TORONTO MARKETS.

Monday, Jan. 2, 1860.

The extreme cold of Saturday morning prevented an attendance at the market, and but very little business was done.

WHEAT—Only a few loads of wheat changed hands at from $1 15 a $1 20 per bushel. In one or two cases slightly higher figures were realized, but $1 20 was the current outside rate.

SPRING WHEAT was in active request at $1 a $1 04 for prime and extra prime; for white and good 95c was freely paid.

BARLEY was quiet and steady at 60c a 65c.

RYE dull and nominal at 70c a 75c.

OATS more brisk at higher rates, 35c a 37c per bushel paid pretty freely.

PORK in fair request but not very animated at $5 00 a $6 00 per 100 lbs. for medium to heavy weight.

HAY in large supply at $17 a $24 per ton, $20 being the figure most frequently paid.

FLOUR very quiet and quotations nominal at $4 50 a $4 55 for superfine; $4 80 a $5 for fancy, and $5 20 a $5 40 for extra, per barrel.

In other articles there was nothing done.

MONTREAL PRODUCE MARKET.

FOR THE WEEK ENDING DEC. 31, 1859.

ASHES.—Both kinds have been in fair demand throughout the week, with very little variation in prices. Pots are saleable to-day at $5 50 for good bills, and Pearls are rather quiet at same figures.

FLOUR.—The market has ruled very steady this week with, however, only a limited amount of business—principally in Superfine, which may be quoted at 5c higher, good brands having been placed at $5 20. Fancy is not offered very freely and is held firmly at $5 50. Extra has been sold to a limited extent at $5 90 a $6 00 for common brands. Double extras range from $6 25 a $7 in retail lots. The market closes to-day quiet but firm at quotations.

OATMEAL.—Is in few hands and held firmly at quotations, with sales.

GRAIN.—Wheat—Several small lots of U. C. Spring have been sold at $1 15½ a 1 16 from railway depot, and a shipping lot of Chigago Spring (ex Store) at $1 15. Oats are a shade firmer; distillers paying 42c a 43c per 40 lbs. Peas are readily saleable at 75c a 76½c for good samples. Barley remains as last quoted, bnt in active demand. Corn—None here.

PROVISIONS.—Beef—Several small lots sold during the week, but are scarcely a basis for quotations. Pork is held firmer, but above views of buyers. The latest sales of Mess were at $17 25 a 17 40. The lower qualities are saleable at quotations. Butter is again dull; fair lots are held at 16c. Lard is in limited demand, and sells at 12½c.

NEW YORK MARKETS.

NEW YORK, Dec. 31.

FLOUR very firm with good demand; sales 12,000 bbls. at $5 20 a $5 25 for superfine State; $5 40 a $5 50 for extra State; $5 20 a $5 30 for superfine Western; $5 35 a $5 55 for common to medium extra Western; $5 70 a $5 80 for inferior to good shipping brands extra round-hooped Ohio. Canadian flour unchanged; sales 200 bbls. at $5 50 a $6 75. Rye flour is steady at $3 60 a $4 40.

GRAIN.—Wheat is very firm with some enquiry; sales of 3,600 bushel White Canadian at $1 41. Rye unchanged. Barley quiet at 76c a 86c. Corn a shade firmer; sales 7000 bushels at 87c a 89c for new yellow. Oats steady, sales at 45½c a 48c for Canadian, Western and State.

PROVISIONS.—Pork market very dull, at $16 for mess, $11 62 for prime. Beef quiet. Lard very dull; sales 75 bbls, at 10⅜c a 10⅝. Butter in fair request at 11c a 16c for Ohio.

Advertisements.

IMPROVED SHORTHORNS.

THE HON. ADAM FERGUSSON, WOODHILL, WATERDOWN, P. O., will have Seven Thorough-bred Durham Cows to calve in Spring. These cows are in calf to "ETHELBERT," bred by Samuel Thorne, Esq., and have a large portion of "DUCHESS" and "BATES" blood. They may be seen at any time at Woodhill, within a half hour's walk of Waterdown Station, G. W. R. R.

Orders for bull calves must be sent by the 1st of March. Full pedigrees will be furnished. Price of each calf $60.

Four of the Cows will be sold at moderate prices.

WOODHILL, Jan. 2nd, 1860.

PURE BRED STOCK FOR SALE.

PURE BRED DURHAM CATTLE, at $75 to $250. Spanish Merino Sheep, Silesian Merino Sheep and French Merino Sheep at $7 to $20. Madagascar Rabbits at $10 per pair. Essex Pigs, Suffolk Pigs and Goe's Improved White Pigs, at $8 each. Brood Mares, served by "Bush Messenger," at $125 to $500. Colts got by "Cotrill Morgan" and "Bush Messenger," at $50 to $200. All animals sold will be carefully haltered or boxed and placed at the Express office. My residence is 4½ miles east of Brownsville, Fayette Co., Pa. P. O. Box No. 6.

JOHN S. GOE.

University College, Toronto.

THE Lectures in this Institution on THE SCIENCE AND PRACTICE OF AGRICULTURE, will commence on MONDAY, NOVEMBER the 7th, and will be continued (five lectures a week), till the beginning of April, 1860. Agricultural students can attend other courses, such as Chemistry, Geology and Mineralogy, Natural History, including Botany, English Language and Literature, &c., as they may desire.

Particulars may be obtained by applying either personally or by letter to PROFESSOR BUCKLAND, University College, Toronto.

Toronto, September, 1859.

GUANO.

WE would call the attention of Guano Dealers, Planters and Farmers to the article which we have on hand and for sale at

THIRTY PER CENT LESS THAN PERUVIAN GUANO,

and which we claim to be superior to any Guano or fertilizer ever imported or manufactured in this country. This Guano is imported by WM. H. WEBB, of New York, from Jarvis' and Bakers' Islands, in the "South Pacific Ocean," and is sold genuine and pure as imported. It has been satisfactorily tested by many of our prominent Farmers, and analyzed by the most eminent andpopular Agricultural Chemists, and found to contain (as will be seen by our circulars) a large per centage of

BONE PHOSPHATE OF LIME AND PHOSPHORIC ACID,

and other animal organic matter, yielding ammonia sufficient to produce immediate abundant crops, besides substantially enriching the soil. It can be freely used without danger of burning the seed or plant by coming in contact with it, as is the case with some other fertilizers; retaining a great degree of moisture it causes the plant to grow in a healthy condition, and as experience has proved

FREE OF INSECTS.

For orders in any quantity (which will be promptly attended to) or pamphlets containing full particulars of analyses and tests of farmers,

Apply to

JOHN B. SARDY, Agent.

No. 58 South St., corner of Wall St., New York City.

N. Y., September, 1859.

FOR SALE.

A THOROUGH-BRED AYRSHIRE BULL 3 years old.

RICD. L. DENISON.

Toronto, July 30, 1859.

THE AGRICULTURIST.

ARRANGEMENTS FOR 1860.

THE "AGRICULTURIST, AND JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA" for 1860, will be published on an entirely new system.

It will appear twice a month, and will consequently be much more useful as a medium of intelligence on all subjects affecting Agricultural Societies, and farmers generally, than heretofore.

Each semi-monthly number will consist of 32 pages, and will be printed on fine white paper.

Notwithstanding the increase of size, and of times of publication, the price to single subscribers will be only half a dollar for one copy per annum.

Further, even at this low rate, a bonus will be given of one free copy for every 10 copies ordered and paid for in advance. That is to say, for $5 remitted, 11 copies will be mailed; for $10, 22 copies; for $15, 33 copies will be mailed, and so on.

The *Agriculturist* is Post Free.

It will consequently be the cheapest paper of its kind, and contain the largest amount of reading matter of any published on this continent.

In addition to the very low terms of subscription, as a further remuneration to those who exert themselves to obtain subscribers, the undermentioned money premiums will be paid to those who send in the largest lists, accompanied with the amount, before or on the 1st day of April next. Subscriptions will be received at any time, and the amount of each list reckoned up on the 1st April. The money must be received, not merely mailed, on that day. The following are the prizes offered:—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of..	$20
To the person who shall send in the next largest list.....	19
To the person who shall send in the next largest list.....	18
To the person who shall send in the next largest list.....	17
To the person who shall send in the next largest list.....	16
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To the person who shall send in the next largest list.....	2
To the person who shall send in the next largest list.....	1

"AGRICULTURIST OFFCE,"
Toronto, November, 1859.

PETER LAWSON & SON,

THE QUEEN'S SEEDSMEN.

EDINBURGH, No. 1 George IV. Bridge.

LONDON, No. 27 St. George Street., Westminster, S. W.

ON ACCOUNT OF THE NUMEROUS applications which have been made to Peter Lawson & Son, to send their Lists of Seeds and Nursery Produce to Canada and the United States, they beg to inform the Trade in America that they are prepared to furnish them with price lists, and to assure them that any orders they may be favored with will receive their best attention.

All orders must be accompanied by Cash or Satisfactory References in Great Britain.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, JANUARY 16, 1860. No. 2.

HINTS FOR THE SEASON.

Winter commenced with more than its wonted vigour, and with the short supply of hay afforded by last year's crop, there is too much reason to fear that the domesticated animals will, in consequence, suffer. Before the commencement of the rigorous weather many farmers had disposed of some of their stock, while others of a reflecting and prudential turn of mind would no doubt devise some means by which they might economise their scanty fodder, and thus render it in the largest degree practicably available for the sustenance of their herds and flocks.

With the risk of repeating ourselves on this subject, its pressing importance is such that we cannot forbear again referring to it. Much even now can be done by enlightened forethought and prudential arrangements. All kinds of stock, including horses and sheep, and even pigs, should as far as possible, *be kept dry and warm.* Most farmers have the means of doing this to a greater extent than is in general found to be the case. A little battening, or even old cast off pieces of clothing, will, in some situations, do a great deal in stopping crevices between the boards of stables and byres, thereby mitigating, if not wholly preventing, the baneful effects of cold draughts on animals. This should be among the farmer's first considerations. As to provender, it is not so much the amount, as the quality, and particularly the regularity and manner in which it is given that constitutes its economical value. For want of system and punctual attention, cattle with abundance of food sometimes do very badly. A litttle provender, especially if cut and mixed, when consisting of different substances, and, given with regularity three times a day, will keep stock in a more thriving condition than a much larger quantity given but once. And during a season like the present, especially, no farmer of any extent, should be without a good straw cutter, and steaming apparatus, and if he could add a grain crusher it would be all the better. With these appliances, straw and haulm of all kinds, with roots, flax-seed, &c., can be so mixed and prepared as to render him, in a great degree, independent of hay. True it is, that such a system would require considerable labor and expense, and no less forethought and regular and persevering effort, in order to obtain the maximum advantages and success. The result, however, before the

summer comes round, will be apparent in the thriftiness and increased value of the stock. With clean bedding, warmth and shelter, pure water and regular feeding, with a small amount of prepared and mixed provender, punctually given two or three times a day, cattle will thrive and continue healthy through our longest and coldest winters. Nay, they will do much better under such a system of management than with a profuse supply of hay under the treatment they at present ordinarily receive. It should ever be borne in mind that when animals are exposed to filth, damp and cold, the greater portion of the food they consume, however good or abundant it may be, is absorbed in generating animal heat, without administering to the growth and fatness of the body. Hence the primary importance of warmth and shelter to all kinds of domestic animals.

When we speak of warmth and shelter, it must not be understood as excluding the external air, and thereby preventing ventilation, which is a condition second in importance to none, to animal health and comfort. Except in extremely cold weather stables and stalls for cattle should be kept perfectly airy so as to avoid always cold currents; and light and dryness, are likewise among the necessary conditions of health and comfort. A dark, damp stable for horses, is the most unfavorable condition in which that noble and useful animal can be placed. Colts and young stock generally, require strict attention and liberal feeding during winter. It is a fatal mistake, although often committed, to stint young stock in their food, or to give them provender of an inferior quality. By this means they will become stunted in growth, and no subsequent care and feeding, however liberal, can possibly compensate for such injuries. Young stock in particular should be kept well *from the first*. The care of sheep in such a climate as ours, demands the greatest care and attention during winter and early spring. Sheep must be yarded in cold weather; but no animal suffers more severely from too close confinement and want of fresh air. They must therefore, not be put too thickly into yards, be kept clean and dry, fed with well chopped hay, straw, and pea haulm, in conjunction with roots, and a little bruised oats and flaxseed, or oil cake, once a day. With such treatment sheep may be carried through our long winters, and increase both in carcase and fleece, and therefore in money value.

The good housewife will not fail to give special attention to her poultry at this season. By affording them warmth and shelter, and liberal feeding, a good supply of eggs may usually be obtained, and the birds sustained in a healthy and thriving condition. Warm food, with a small supply of minced flesh, and letting them have access to lime, sand and water, with perfect cleanliness, are the chief indispensables to success in the keeping of poultry.

Bees, too, require special attention; they should be protected against the intense cold by shelter and covering. Some remove them into dark cellars, or cover them over in the ground till the approach of spring, when, if they are deficient in honey, they must be artificially fed. Bee-keeping in situations favorable to these industrious little creatures, may be made with proper care and management, a profitable, though a subordinate part, of rural economy.

CHAFF CUTTERS.

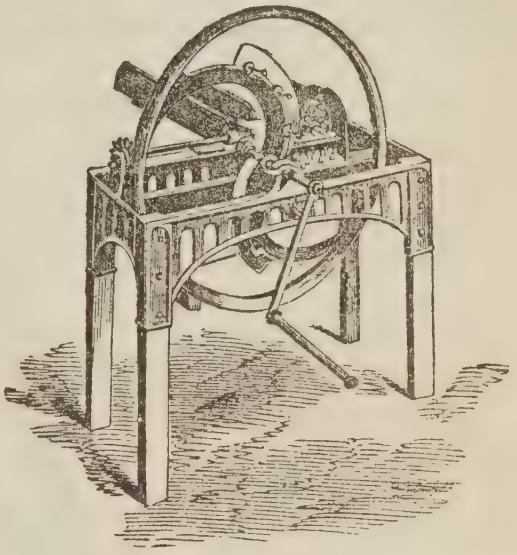
The name of these machines is a misnomer, as they are intended to cut straw or hay, and not chaff; hence the term straw-cutters would much better designate the purpose which they are intended to serve.

Chaff, or straw cutters, are now considered as an essential appendage to every farmery, where the improved and economical methods of feeding stock are recognised and practised. Their utility mainly depends upon other grounds than those which justify the use of grain crushers; the chief object of which is to bruise the corn, in order to facilitate mastication and digestion. The cut-

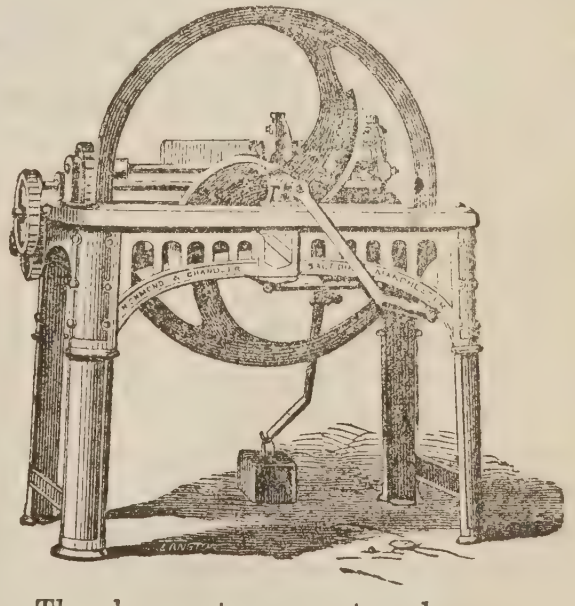
ting of hay or straw into short lengths does of course promote in some degree these objects, but the principal advantage of the chaff-cutter is that inferior food, such as different kinds of straw or haulm, can be cut with hay, thereby effecting a thorough mixture of different qualities, which the animal is obliged to consume as a whole, and thus prevents it from choosing and wasting its food. It is in effecting this mixture of different things, and the prevention of waste in the feeding of them to stock, that the economy of the chaff-cutter principally consists. With ruminating animals, such as cows, for instance, the cutting of hay or straw, so far as the power of mastication and digestion is concerned, is a matter comparatively unimportant. It is far different however with the horse, especially when that animal is driven hard, and has but little time for feeding or rest.

Mr. Finnie, in a discussion before the Highland Society of Scotland, a few years since, argued for the use of the chaff cutter, when hay or straw is given as food, on the following grounds:—1st, because the horse will thus be induced to consume a much larger proportion within the 24 hours; 2nd, because you will afford him some hours of additional rest, during that time, to recruit his exhausted system, as, comparatively speaking, he almost requires no time to fill himself; and 3rd, which is not the least important consideration, the more fodder he eats, the better will be his condition; for it is certain that any stranger going through a stud of farm horses, will have no difficulty in pointing out those which are the best consumers of fodder.

These machines are more or less in use in every section of this Province, and some cheap and tolerably efficient implements are made in various places. We have noticed of late years, at the Provincial Exhibitions, that these, as well as other important agricultural implements, have undergone very marked improvements. We now invite the attention of our readers to the following illustrations of Richmond & Chandler's Chaff Cutters; a firm, which, it would not perhaps, be too much to say, stands unrivalled for machinery of this description. Their machines are constructed entirely of iron, and fitted with toothed rollers. Careful attention has been given to the feed rollers, and the rising of the mouthpiece, so as effectually to avoid the inconvenience of choking.



The above cut represents a machine with two knives, simple in construction, neat in appearance, expeditious in operation, portable and effective for its purpose, and produces a clean and neat cut. It can readily be fed and turned by one man, and cuts easily 20 bushels an hour. Price £4 10s. Extra knives 4s. 6d. each.

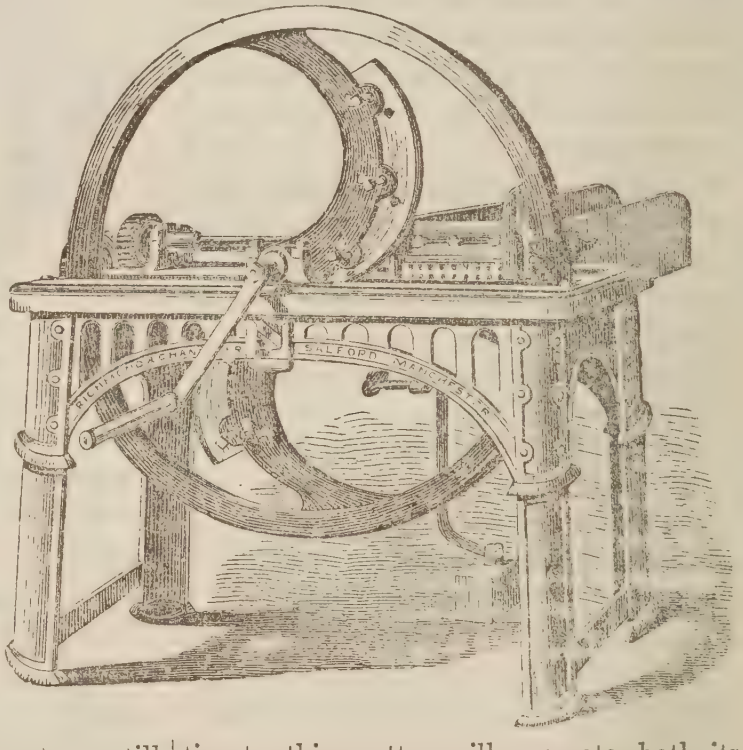


The above cut represents a larger machine. Price £7.

The construction of Richmond and Chandler's Machines offers many important advantages, as the rollers have hooked teeth (in place of the old form of grooved cylinders), which uniformly bring forward the feed with certainty, and are not liable to the inconvenience of choking, while they admit of any variation in the feed to suit the power employed, and by means of toothed wheels a change can be readily made to cut any required length.

In recommending these machines, it is unecessary to explain the many and great advantages to be derived from their use, particularly in connection with the Steaming Apparatus. In public stables the saving they effect is most important! "Indeed so visible are the results of feeding with cut fodder (whether as regards economy or the improved condition of animals so fed), that no stable should be without a machine suited to its extent, even where there is but one horse kept."

The superior style of workmanship in this new class of Chaff-cutters is particularly manifest in the improved bearings, fitted with brass journals and loose caps, which can quickly be adjusted as the journals wear in their bearings, or when renewal is required.



Our third engraving represents a still larger machine, adapted to hand or power. It is 11 inches wide in the mouth, rising from 1½ to 5 inches. Price £10, complete. Pully for power 9s. Knives 4s. 6d. each. Change wheels, to vary the length of cut, 6s. per pair extra.

This machine has registered improvements similar to the last mentioned, fitted with the well-known self-feed safety tooth roller, the form of which has been improved and reconstructed, so that the feeding is thereby facilitated, and even occasional slippage and choking are prevented. The machine is made entirely of iron, firmly bolted and stayed together, standing steadily, and working with comparative ease. Its bearings are of brass, and the working parts are fitted with the greatest precision.

In feeding the machine with hay or straw be particular in keeping the feed an equal and regular thickness, and it will be found to cut more, and easier, than when it is overfed, and entirely prevent the machine from being strained or broken. It is of the greatest importance that the machinery should be kept perfectly clean, and the best sperm oil used wherever there is any friction. Attention to this matter will promote both its durability and efficiency.

These chaff cutters have frequently carried off the first prizes at the three National Shows of the British Islands, and their superiority, whether in design, the quality of material, or the finish of the workmanship, are universally acknowledged. Messrs. Richmond & Chandler's manufactory is in Manchester, England, and they export a large number of their different implements and machines to foreign countries, and the British Colonies.

STOCK IMPORTATIONS.

We learn with pleasure that Mr. Stone, of Guelph, so well known as an enterprising and successful importer and breeder, has imported from England in the month of December last, a lot of twenty pure Cotswold Sheep. They are considered by many to be the best lot, upon the whole, of any of his previous importations. Although at Mr. Stone's sale in September last, the times appeared anything but encouraging as regarded the importation of stock, yet in October and November he had a good demand, and determined upon an importation to increase his flock and introduce fresh blood—so that farmers, if they wish it, will be able to supply themselves next year with valuable stock, without any great risk or expense. Should Mr. Stone receive a reasonable amount of support during the present year to justify it, he has resolved upon further importations; and he is determined to place his herds and flocks, as regards purity of blood, symmetry, quality and constitution, in the highest rank in Canada, and second to none in America. We heartily wish Mr. Stone every success in his praiseworthy and patriotic enterprise.

COUNTY AGRICULTURAL SOCIETIES.

The Annual Meetings of County Agricultural Societies, under the Act 20 Vic., cap. 32, must be held during the third week in January, which will be, of course, from the 15th to 21st instant inclusive. The nomination of members of the Board of Agriculture to supply the place of those retiring by rotation takes place at these meetings. The members whose term of election expires this year, are Messrs. E. W. Thomson, Toronto; R. L. Denison, Toronto; H. Ruttan, Cobourg; Hon. Geo. Alexander, Woodstock. Their retirement, however, does not render them ineligible for re-election. It is at these meetings also that the Reports of proceedings for the past year must be brought up and adopted. The attention of officers and directors of societies is requested to an advertisement which appears in another column on this subject.

Prizes for Subscriptions.—We do not wish our friends to lose sight of the point that all subscriptions to the *Agriculturist* cease with the end of the year, and the paper for the new year is not sent to any one till ordered, except a few copies to officials, &c. We therefore request attention again to the terms of subscription for the current year. It may require a very large list to obtain one of the largest money prizes or bonuses, or a comparatively small one may suffice; we cannot tell at present; but each person sending subscriptions, will be on the safe side, and will promote the spread of agricultural intelligence in his section, by sending as full a list as possible.

Correspondence.

AGRICULTURE, HORTICULTURE, AND THE CLERGY.

Dear Sir,—And so you have found one who doubts the propriety of the clergy giving attention to such things as farming and gardening. Please stand aside, Mr. Editor, and let me deal with your adversary. You sir, who say, that to such things we should be debarred from giving any consideration, you demand a sufficient reason for our doing so. Such sufficient reason is close at hand. Here is one:—The great Dr. Johnson once said—and were you questioning him would doubtlesss again say, "Sir, I once knew an excellent country clergyman, bring up a family of twelve admirable daughters upon apple-dumplings." There, sir, is not that good authority?—is not that good reason enough? No. Then remember, I pray you, that the *garden* has been the scene of the most wondrous events which the annals of earth—and probably those of heaven—have ever recorded. Was it not in a garden the first man drew his first breath?—Was it not there that the fairest earthly gift god ever gave to man, came into his possession? Was it not upon herb, and flower, and fruit that man's eyes first rested when they opened upon a new-born world? Were not these the first to greet his welcome and offer for his refreshment the soft shade of

the one, the charming fragrance of the second, and the reviving juices of the third? Was it not in a garden in which that fearful deed was done, which ensured to all his descendants a soil so impregnated with seeds of thistle, and brier, and all manner of weeds, that the cultivation thereof has become a sad and constant toil? Or, descending the stream of time, was it not in a garden that the Redeemer of mankind passed through that supernatural struggle, and suffered those agonies which the Greek litany so wisely words in saying, "By thine unknown sorrows, known indeed distinctly with thee, but not known by us." Was it not in a garden that the new tomb, wherein never man lay, was found and in which his sacred body had its brief sojourn? The Clergy not to care about the garden, sir, we neither can nor dare be indifferent to it.—We would not that the hour should ever dawn when, to our minds, the garden should cease to be a deeply interesting and instructive scene and study. Yes, but you say that is not what you mean. You mean that it is not necessary for us to be well informed in Horticultural matters, in the nature, structure and habits of trees, fruits and flowers. Indeed you sadly misjudge; without such knowledge we could throw but a feeble light upon many a difficult passage in the word of God. Let me give you an instance. Take the 13th verse of the 11th chapter of St. Mark, which reads as follows: "And seeing a fig tree afar off having leaves, he came if haply he might find anything thereon, and when he came to it he found nothing but leaves: *for the time of figs was not yet.*" What is the impression, the first feeling that arises in the mind upon reading this passage? Is it not at least a feeling of pain? What, a tree to be condemned for not having fruit, when it is expressly said, that "the time," or season, "of figs was not yet," when we know that as this happened in March or April, the general season for gathering figs could not have arrived. Who would go into the orchard and look for apples in the early cold Spring time, and condemn the trees for not then having fruit upon their boughs. Could the perfect Saviour of the world do this? There must surely be some explanation which will remove so painful a misgiving.—There is, but it is only found in the knowledge of the habits of the fig tree. Possessing such knowledge we can inform you that it is the habit of the tree to put forth fruit before clothing itself with foliage, that although the fig may not be fully ripe it is eatable—eatable while yet very green.—That the very circumstance of the fig tree having leaves, begets the expectation of finding fruit thereon, and that disappointment would be certainly and properly felt by any who failed to find it. Not only so, there were, if we are correctly informed, some kinds of fig trees which always, in all seasons, bore fruits in that mild climate—both green and ripe fruits. Such trees were always in foliage, one would therefore be warranted to look for fruit from such. Thus, when he says, seeing a fig tree having leaves, and approaching it found none, he was justly grieved and disappointed. It is out of place here to remark upon the figurative teaching of the incident recorded. Again, without some acquaintance with horticulture we should not have been able to point out the beautiful accuracy of scripture in all its allusions to nature in our New Year's Day sermon, upon the parable of "The Barren Fig Tree." In all the advantages described as being enjoyed by this tree—and they were many—advantages of position, of soil, of protection and of care. Nothing is said about pruning. And why? Because, unlike almost every other tree, it is a standing maxim in fig culture, "the more you prune the less the crop." But when we are compared to the branches of the vine, in addition to their necessary connection with the stem, and the constant flowing of the sap, pruning is specially mentioned, (see St. John, 15 chapter, verse 2). And why? Because pruning is necessary to promote the fertility of the vine. "The old wood of the vine is not only of no use," says a good author, "but is a positive injury to the fertility of the plant." Now, who can be so dull as not to see what light and beauty a familiarity with horticulture, sheds upon passages such as these, and how it draws our notice to those slight coincidences of scripture with nature, which does so much to strengthen our conviction of its divine origin. But the objector now says, he does not so much blame our having a knowledge of trees and shrubs, of flowers and fruits, but what ought we to have to do with *Agriculture?* I answer much every way. Most of us have many little mouths to fill, and little feet to shoe, and little backs to clothe, and this cannot be done without means; although the people in general seem to be of opinion that they can. And until they change their opinion and have some little conscience about the matter,—for now they have none, for while they do not for a moment expect a physician or a lawyer to attend them unremunerated, they do look for the necessary attentions of the clergy, "without money and without price" literally—and until this injustice and cruel wrong

cease, a farm or a school, to by far the larger number, becomes a necessity. But let us look higher, and for the same reasons we urged in favor of horticulture, we insist upon the advantage of a familiarity with agriculture, both ancient and modern,—that is, as throwing a light upon the passages which otherwise would be dark, if not unmeaning. Here is one, Deut. 11 chapter, 10 verse: "For the land whither thou goest in to possess it, is not as the land of Egypt, from whence you came out, where thou sowedst thy seed and *wateredst it with thy foot.*" How was this done? It is evident that the venerable lawgiver is referring to some practice in Egypt, of watering with the foot, unknown to us. He is comparing the processes of irrigation in the two countries, and shows that the land to which the Israelites were journeying should not be watered by human labor, but with the rain from heaven, as Egypt was and was not. The annual inundation of the Nile was made available by the Egyptians for the purposes of irrigation. From cisterns filled by the inundation, the water is drawn into channels cut in the ground, which convey it into those places where it is wanted, and when one part of the ground is sufficiently watered, that channel is closed by pressing the earth against it *with the foot*, in the same way was the channel often opened. Thus was Egypt *a land watered by the foot*, while Palestine was a land of hills and valleys, and drinketh water of the rain of heaven. There is no need of further illustration. If there were, a slight acquaintance with the bible would show, that it is very proper and profitable for the clergy to have a good knowledge of farming and gardening. What little acquaintance I have with these subjects I find of great utility. And as for the garden, I have yet to learn what can approach it in the purity and healthful recreation it affords, or surpass its products when obtained fresh from its borders, and not hours and days after being gathered, and when they have passed through various hands, brought from the market. The garden has further claims upon us, if it be true that in its employments none but a good man will really delight. Yet this is said: It is undeniably the case that these employments grow upon one as he grows in age; and when a man will often turn with disgust from the pleasures outside the garden, he sought in youth and early manhood, those within have an attraction he finds it impossible to resist. Nor need he try; for few sights are more pleasing than to see an old man busy with his shrubs, and flowers, and trees, pruning here and training there as each of his old friends may seem to need. In conclusion let me add, that to no one who has or would have the great blessing of a sound mind in a sound body, no matter what his profession or condition in life, ought the garden to be an object of indifference. To all it is able to impart the highest and purest delights—delights which leave in the mind no subsequent regrets, but of these we hope hereafter to have something to add, more than, coming at the tail end of an article already too long, we could possibly say.

Yours, CLERICUS.

P. J.—I must detain you here a moment to remark, that you will observe that I have not stated, what must be obvious to every reflecting man, that it is a clergyman's business, so far as he can, to promote the well-being of man generally, as well as the safety of his immortal spirit particularly. He cannot, therefore, be indifferent to material, closely connected as they often are with the moral, interests of the people. Yet there are who assume that he has not a deep stake in the welfare of all, in any degree commensurate with that of others; as if when one becomes ordained he ceases to be a man, as if he were sapped of all those warm affections which men are commonly supposed to possess. As if an old bachelor, because he is a layman, can be more concerned for the general good than a man who has six or a dozen sons and daughters, for whose future well being he is gravely anxious, and whose prosperity must be bound up in that of all. And as if the greater the purity and the elevation of a man's affections, the less disinterested he will grow, and the more indifferent to the happiness of those around him. It is simply absurd. But I must stop.

[We are obliged to our clerical friend for this and other contributions, one of which appears in this impression. In our next we propose inserting another article on the subject embraced by our correspondent's communition from one of our American exchanges, with some remarks of our own. It is a matter that will amply repay careful consideration.—ED.]

WINTER BARLEY.

OTTAWA, 6th Oct., 1859.

To the Editor of the Agriculturist.

DEAR SIR,—This note will accompany a few sample ears of a new variety of Barley,

five-rowed, cultivated by Charles Chapman, Esq., of this city, who is a cultivator of much experience, which he regards as being of much value. A fuller description of the grain will be found in a slip cut from the Ottawa *Citizen* of the 17th of September last.

He will also enclose you a plant, in order to show the characteristic of this variety. It was sown on the 9th August last, and Mr. Chapman assures me that his experience justifies him in saying that it is not too early to stand the winter frost.

In sending you a specimen, he desires to trouble you to notice it, and thus introduce it to the attention of your readers.

Very truly yours,

JOHN G. BELL,

Sec. Carleton Co. Agricultural Society.

A NEW SPECIES OF BARLEY.

Our attention has for a long period been particularly drawn to a plant that has for several years been experimented on by Mr. Chapman, of this city. We are now in a position to describe its properties, and our opinion of the probable results attending its culture. It is, we believe, perfectly unique, viz: a Fall Barley. It possesses, in an eminent degree, the most valuable characteristics, some of which are extraordinary productiveness, hardiness, earliness, and a perfect immunity from all insects and other pests to which our cereals are exposed. Another, and not an inconsiderable advantage is, the small quantity of seed necessary to sow the land, compared with other grains. But, probably, the greatest of all is its power to save the wheat crop from the fly. With this peculiar merit, that the experiment can be made with the certainty of a great and remunerative crop, with an equally certain market for any quantity that can be grown, and without any interference with the existing arrangements of the farm. It appears to be an indisputably established fact, thrt the wheat fly commits its ravages essentially in the locality where it is bred, and does not emigrate far to deposit its larvæ. In fact, if wheat over a moderately extensive area, was for one season superseded by another crop obnoxious to the fly, it would be in that locality extirpated. This barley will effectually bring about this result, for after seven years' critical examination of it, not one single ear has ever been attacked by fly, smut, rust, or any of the evils to which other cereals are subject. We need not dilate upon the importance of the subject, for the vast amount of wheat destroyed by this pest is but too well known, and there can be no doubt it is one of the great questions of the day, not only with the practical farmer, but with the theoretical man of science, to discover some means to arrest the evil. We believe if the growth of this plant be extensively adopted, it will go far to bring about this great desideratum, with the positive certainty that the experiment can be made not only without individual loss, but, on the contrary, from the marvellous productiveness of this barley, a certainty of great gain; in proof of which we have now before us a sample of it, containing stalks with an average of 70 grains each, and as many as 80 stalks from one grain of seed, all of them fully developed, and really a beautiful specimen of grain. It is fully as hardy as fall wheat, for in no seven years of the history of this country has there been a more severe trial for fall grain than during the last, and it has never failed. The manner in which it stools or spreads laterally on the land is extraordinary. It is sown in drills, from 10 to 12 inches apart, and the grains from 2 to 3 inches in the rows, which is amply sufficient, for within these few days we have visited Mr. Chapman, and the land first sown this fall is already perfectly covered. Other lands, sown at different periods, are developing themselves in an equally remarkable manner; so that by the end of this month every inch of land will be covered, and that by the produce of less than one gallon of seed to the acre. However marvellous this may appear, it is strictly and literally true, any doubt of which would be effectually removed from the mind of any person who should see it growing. We understand Mr. Chapman proposes to send a specimen of it to the Agricultural Show at Kingston, where we claim for it the attention and careful inspection of all who are interested in the cultivation of land; and have no doubt many will avail themselves of the opportunity of seeing, in its present state of growth, what we consider one of the most remarkable, as well as one of the most useful plants ever introduced into this country. Mr. Chapman, we may state, will be happy to show it in all its stages of growth; for having sown it at different periods, he will be enabled to show, by actual inspection, the best time of sowing, as well as that it may tell its own story as to its productiveness, and general quality.

[We are obliged to our correspondent for specimens of the straw and grain of the Barley above referred to. Mr. Chapman is de-

serving of the thanks of the Agricultural community for his pains and perseverance. Judging from the appearance of the specimens sent, and from the little information we have been able to obtain from other quarters, we are of opinion that this variety of Barley is deserving of repeated and extensive trials throughout the Province. The best time for sowing Winter Barley is said to be from the middle of Septemeer to the end of October. On well prepared land two bushels of seed per acre is sufficient, and it will generally ripen a week earlier than Fall Wheat. Those that have tried it in the States speak of it as a hardy and highly productive variety; and but little subject to disease or the attacks of insects. From forty to sixty bushels per acre have been grown under favorable circumstances. Of its feeding and malting properties we have not as yet received any very positive information. No doubt but the attentlon of our farmers will be drawn to it from the preceding communication.—Ed.]

Agricultural Intelligence.

THE WIREWORM.

[We take the following from an interesting little work published by Constable & Co., Edinburgh. As the wireworm often commits ravages on the crops in Canada, especially in land that has been down in pasture for many years; these papers, from the perspicuity of their style, and the facts they contain, will be read, with both pleasure and profit, by a large number of our subscribers.—Eds.]

THE BEETLE.

The parent of the wireworm is an active, abstemious beetle, which may be seen running up the stalks of grass and wheat, and flying lightly about. When it first appears it is of a pale colour, soft and tender. Exposed to the air and light, its body hardens, and its colour gradually changes and assumes the tints of the species to which it belongs. There are many species of wireworm beetles of various colours, some black, some brown, some parti-coloured. Like all true insects, they have six legs, two wings, and two covers over them, called wing-cases. They have two immovable eyes, called compound eyes, because they have a multitude of small planes or facets. As the eyes are projecting, and the facets are numerous, they are able to see in all directions, though each facet sees only a limited portion of the view. They have also two antennæ or feelers at the front of the head, which are frequently called horns. They are believed to be either the organs of smell, or hearing, or touch, and by some understood to be the organs of all three.

These beetles, like other insects, are male and female. They are active and run with their noses close to the ground like dogs; and they have the peculiar power, when laid on their backs, of throwing themselves up, and tnrning head over heels like a tumbler. For this reason they have received the English name of skip-jacks or spring-beetles; and from the noise which the apparatus makes, which enables them to leap, they are also called snap or click-beetles. They thus recover their natural position when they fall upon their backs, their legs not being long enough to enable them to do so. This apparatus consists of a tooth or spine projecting backwards from the breast, and received into a corresponding hollow at the anterior part of the belly, into which the spine is drawn as the animal wishes, but cannot be pushed out without an effort. If it desire to leap (which it can do only when lying on its back), it presses down both its head and tail, and pushes out the breast, the spine in the hollow resisting the pressure, until at last it is jerked out suddenly and violently, the recoil making the insect bound into the air several inches.

In the perfect state, insects usually eat but little. It is only in the grub or caterpiller state that the wireworm does injury, by gnawing the roots of plants; when it has become a beetle, it no longer feeds on them, but confines itself to the juices of flowers. It therefore does no harm in this state, and is only to be dreaded for the eggs it will lay, which are destined, in due time, to produce voracious and destructive grubs.

It is not known with certainty whether the eggs are laid at one or two seasons of the year. Two broods of many insects (more especially of butterflies and moths) appear in the same year—one in Spring and another in Autumn; but the same individual insect does not lay two broods of eggs, for the female of all insects dies as soon as she has deposited her eggs.

When, therefore, there are two broods of iusect in one year, the second brood is the

offspring of the first, which has attained its maturity during the summer, and has laid its eggs in its turn. It is in May and June that the eggs are chiefly laid. The number laid by each insect is considerable.

THE EGG.

The insect passes through several changes. Its first appearance is in the form of an egg,* when it is merely a small, roundish, yellowish-white object not so big as a small pin's head. No one has yet found out where the eggs are laid; and we only know their appearance by dissecting the mother, and taking the eggs out of her body. We can guess very well where she lays them, but that is all—we do not yet *know it*. Insects usually lay their eggs where the young ones will most readily find their food; for instance, the bluebottle fly lays its eggs on meat, because its grub feeds on that substance—the dung beetles lay their eggs in dung—the common white butterfly, whose grub feeds on the cabbage, lays its eggs on the leaves of that plant, and so on. We may infer, therefore, that the wireworm beetle does not lay its eggs far from the roots on which the young wireworm grub is to feed—and most probably it lays them between the enveloping leaves or sheathes of a plant near the base of the stalk, but no one has yet seen them do so, and it cannot therefore be held as ascertained, because no fact ought to be taken for granted. It is not, however, for want of watching, that we do not know where the insect lays its eggs; many people have taken pains to find this out, but as yet without success. Others may be more fortunate; and the following plan, which was tried by Mr. Curtis, shows how such observations may be conducted. About the end of May be collected as many of the beetles as he could find, and then put them into a garden-pot in which some young wheat was thriving, and then tied some gauze over it to prevent their making their escape. He found this precaution scarcely necessary, for they remained a very short time on the surface of the mould before they began to dig into it, and soon buried themselves completely. From their thus seeking the roots of the wheat, he was led to believe that they there deposited their eggs; consequently, on the 14th of June he emptied his garden pot, and found two of the beetles dead at the roots of the wheat, but he was not able to detect either eggs or recently hatched wireworms.

(*To be Continued.*)

*The eggs of many insects have the shell ornamented with beautiful sculpture, but there is nothing of this in the egg of the wireworm beetle.

THE EARLY ENGLISH AGRICUTURAL WRITERS.

[Many of our readers will doubtless feel interested in the following sketches of the early history and literature of British Agriculture, from the prolific pen of CUTHBERT W. JOHNSON, Esq., F. R. S., copied from the *Mark Lane Express*. They will find in these remarks of by-gone times not a little that is suggestive, and much that will prove amusing.—EDS.]

That the early inhabitants of our island practised agriculture is well known. That the districts bordering on the English Channel were better cultivated than those of the interior of the island, we learn on the authority of Cæsar. After his expedition to England, B. C. 55, he described the Cantii, or inhabitants of Kent, and the Belgæ, inhabiting our counties of Hants, Wilts, and Somerset, as the most advanced of our island tribes in the habits of civilized life. They cultivated the soil, employed marl as a manure, stored their corn unthrashed, and separated it from the chaff and bran, only as their daily demands required. The interior inhabitants lived chiefly upon milk and flesh, being fed and clothed by the produce of their herds. "The country" adds Cæsar, "is well peopled, and abounds in buildings resembling those of the Gauls, and they have a great abundance of cattle. They are not allowed to eat either the hen, the goose, or the hare; yet they take pleasure in breeding them." Cicero in one of his letters remarks, "There is not a scruple of money in the island; nor any hopes of booty but in slaves,"—a description that the industry and intelligence of succeeding years have rendered singularly inapplicable.

Such are the earliest yet meagre allusions to the farming of our island, in our possession. There is no doubt but our ancestors had more agricultural knowledge than we are always willing to believe. And that this skill in the art of tillage did not diminish in succeeding Saxon and Norman days, is equally certain. To the very earliest existing notices of the farming of Saxon times I do not, however, propose now to direct the reader's attention. My intention is to commence these retrospective glances, with some of those writings or official notices which appeared from the ninth or tenth centuries, to about the year 1852—the year when old Fitzherbert published his work on the English farming of those days.

The conciseness and spirit with which

these early English writers addressed their contemporaries is well worthy of our notice. They had evidently little faith in the effect of long arguments or half measures. Their works could only be known in manuscript. Printing was, in the days to which I refer, either unknown or merely rudely commenced. Our earliest authors therefore imitated, almost of necessity, the terseness of our early lawgivers, who practised brevity to admiration. Now it is in the statute books of England, Wales, and the sister-kingdoms, that we find some of the earliest notices of the agriculture of our islands. And it is not only an amusing but an instructive enquiry to trace in these laws the primitive notions of our ancestors with regard to husbandry—how bravely former English senates endeavored to teach farming by acts of parliament; tried to keep not only the prices of food below its market value, but of laborers' wages also; how they earnestly strove to protect his growing corn from vermin, from trespasses of all kinds, excepting game, and how they even endeavored to teach the men of those times what they should eat, what clothes they should wear, and in what rural sports they should indulge.

Their very limited knowledge of the true principles of political philosophy, indeed, more recent senates have not always exceeded, and modern parliaments have rarely equalled in their laws even the vigor of those of the Houses of Plantagenet and Tudor.

The reader when he is following me through some of these early legislative writings, must remember that in those days the population of England was in all probability not much larger than that of London now. That the country was undrained, ill cultivated, and that only the richest portions of the land were enclosed, commons and forests occupying the remainder. Of the produce of that portion under the plough, every notice which has escaped to us betrays the poverty. For instance in 1387, on the manor farm of Hawstead in Suffolk, 66 acres of wheat produced 69 quarters of grain, 26 acres of barley yielded 52 quarters 2 bushels of seed. And about the same period the manor farm of Dorking, in Surrey, produced from 30½ acres of barley, 41 quarters 4 bushels of grain, 28 acres of oats only 38 quarters 4 bushels.

The writers whose works I propose to hereafter notice, are Greathead or Grotehead and Fitzherbert. But previous to this it will be well to take heed of the laws which before and during their time were made to regulate the proceedings of the farmer.

The value of his corn early attracted the attention of our parliaments. In a statute supposed to have been made in 1266, the 51st of Henry III., the municipal authorities of towns were thus directed: "First they shall enquire the price of wheat, that is to wit, how a quarter of the best wheat was sold the last market day, and how the second wheat, and how a quarter of barley and oats."

In 1360, by the 34th Edward III. c. 20, the exportation of corn was prohibited. It was 33 years after that time, that in 1398, by 17 Richard II., c. 7, all the king's subjects were allowed to export corn to any but the king's enemies. This act was not repealed till the year 1603.

In 1436, 15 Henry VI., wheat was allowed to be exported when it was 6s. 8d. per quarter at the place of shipment, and the preamble of the act indicates that the produce of wheat had increased beyond the demands of the population, since it says when alluding to the restrictions on the exportation of corn, "For cause whereof, farmers and other men *which use manurenent of their land*, may not sell their corn, but of a bare price, to the great damage of all the realm."

It is evident from this statute that only some of the most enterprising farmers, then manured their corn land. Still they did not so increase the produce of grain as to render their country quite independent of foreign corn; for only a quarter of a century afterwards, we find the first symptom of protecting duties.

In 1403, by the 3rd of Edward IV., c. 2, it was declared that "the labourers and occupiers of husbandrie, within the realme of England, be dayly grievously endamaged by bringing of corn out of other lands and parts, into this realme of England, when corn of the growth of this realme is at a low price." It then proceeds to enact that corn shall not, under pain of forfeiture, be imported into England, until wheat exceeds in price 6s. 8d. per quarter, rye 4s. and barley 3s.

Our old British ancestors long before this time had, however, absolutely prohibited the exportation of corn.

By the old laws of Wales, made certainly not later than the tenth century (*Ancient Laws and Institutes*, p. 655,) it was ordered that "three things are not to be conveyed to a foreign country, without the permission of the country and the lord—gold, books, and wheat. And three things that an aillt (alien) is not to sell without the permission of his proprietory lord, lest he should want to buy them of him—wheat,

money, and horses. And where his lord shall not buy them of him, he is at liberty to sell them wherever he willeth, so that he do not sell them to a foreign country."

In 1533, the act of 25 Henry VIII., c. 2. for a time put an end to the exportation of English corn, and absurdly enough gave the lords of the council the power to declare by proclamation the prices at which farmers and others should be compelled to sell their commodities; although, as the preamble of the act much more wisely allows, "dearth, scarcity, good cheap, and plenty of cheese, butters, capons, &c., and other victuals, happeneth, riseth, and chanceth, of so many and divers occasions, that it is very hard and difficult to put any certain prices to any such things."

Long before the resolute days of stout old Harry the VIII., the legislature had been at work heartily endeavouring to reduce the price of provisions below their market value, for in 1266, by the 51 Henry III, it was ordained (and this statute was not repealed until the 8th of Ann c. 18) that "when a quarter of wheat is sold for 11d. then wastel bread of a farthing shall weigh 6lbs. and 16 pennyweights, (a pennyweight round and without any defacing, was to weigh 32 wheat corns in the midst of the ear, and 22 pennies do make one ounce, 12 ounces a lb."). And by the same statute it is provided that "when a quarter of wheat is sold for 3s. or 3s. 4d, and a quarter of barley for 1s. 8d. or 2s., and a quarter of oats for 1s. 4d., then brewers in cities ought, and may well afford to sell two gallons of beer or ale for a penny, and out of cities three gallons for a penny."

The parliament of those times were evidently in earnest in their endeavours to keep the bakers and brewers in order, for during the same year (1266) was passed the "sta tute of the pillory and trumbrel," which also continued in force till the time of Queen Anne. This, like all our early statutes, eschewed all unnecessary verbiage.—The stout barons of that year thus commenced their act: "If a baker or brewer be convict because he has not observed the assize of bread and ale, the first, second, and third time he shall be amerced according to the offence, if it be not over-grievous; but if the offence he grievous and often, and will not be corrected, then he shall suffer punishment of the body, that is, to wit, a baker to the pillory, the brewer to the tumbrel or some other correction."

We may suspect by this marked distinction between the punishment of the bakers and the brewers, that even then brewers were held to be in a large and more dignified way than the bakers, since they were to be allowed the privilege of riding in a tumbrel.

A certain degree of humanity was displayed by the legislature even in punishing rascally bakers, for by another statute made about this time (Ruffhead. vol. i. p. 186), it was provided that a baker should only be amerced "if his bread be found lacking one farthing in two-and sixpence:" but if his short weight exceeded this, he was to be placed in the pillory. And further, it was humanely provided that "every pillory, or stretch neck, must be made of convenient strength, so that execution may be done upon offenders without peril to their bodies." The unprincipled butcher by another statute (*ibid p.* 187.) was subjected to the same punishment, "who selleth swine's flesh meazled, or flesh dead of the murrain."

To be continued.

Reducing Bones to Powder.—Prof. E. W. Johnson, of the Yale Analytical Laboratory, has given the following method of reducing bones to powder, first communicated to the public by Mr. Pusey, an English agricultural chemist:

The process depends upon the fact that bones consist, to the amount of $\frac{1}{3}$ of their weight, of cartilage, or animal matter, which under the influence of warmth and moisture, readily decomposes,(ferments or decays) and loses its texture, so that the bones fall to dust.

From the closeness and solidity of the bony structure, decay is excited and maintained with some difficulty. A single bone or a heap of bones, never decays alone, but dries and hardens on exposure. If, however, bones in quantity be brought into close contact with some easily fermentable substance, but little time elapses before a rapid decay sets in.

So too, if fresh crushed bones are mixed with sand, soil, or any powdery matter that fills up the spaces between the fragments of the bone, and makes the heap compact, and then are moistened with pure water, the same results take place in warm weather, though more slowly.

The practical process may be as follows: The bones, if whole, should be broken up as far as convenient by a sledge-hammer, and made into alternate layers with sand, loam, saw-dust, leached ashes, coal ashes, or swamp muck, using just enough of any one of these materials to fill compactly the cavities among the bones, but hardly more. Begin

with a thick layer of earth or muck, and as the pile is raised, pour on stale urine or dung heap liquor enough to moisten the whole mass thoroughly, and finally cover a foot thick with soil or muck.

In warm weather the decomposition goes on at once, and in from two to six or more weeks the bones will have entirely or nearly disappeared.

If the fermentation should spend itself without reducing the bones sufficiently, the heap may be overhauled and built up again, moistening with liquid manure and covering as before.

By thrusting a pole or bar into the heap, the progress of decomposition may be traced from the heat and odor evolved.

Should the heap become heated to the surface, so that ammonia escapes, as may be judged by the smell, it may be covered still more thickly with earth or muck.

The larger the heap the finer the bones, and the more stale urine or dung-liquor they have been made to absorb, the more rapid and complete will be the disintegration.

In these heaps horse dung or other manure may replace the ashes, etc., but earth or muck should be used to cover the heap.

This bone compost contains the phosphates of lime in a finely divided state, and the nitrogen of the cartilage, which has mostly passed into ammonia or nitrates, is retained perfectly by the absorbing earth or muck.

When carefully prepared this manure is adapted to be delivered from a drill-machine with seeds, and, according to English farmers, fully replaces in nearly every case the supherphosphate made by help of oil-of-vitriol.

Horticultural.

TROUBLES IN THE FRUIT GARDEN.

NO. 1.

DEAR SIR,—In conversing with you lately upon the subject of fruit-growing, I received the impression that you were rather disposed to despond respecting our great success. I cannot share this feeling with you. Admitting that very great discouragements meet the Horticulturist in his delightful line, it is to admit no more than what is true respecting every human employment. You say it is thought that these discouragements are heavier now than they have been at any former period. This may or may not be the case. It may be that the multiplied facilities of learning the failures experienced which we have now, to what formerly existed, may have much to do with this opinion. Or perhaps fruit trees are subject to epidemics at different periods as well as the race of animals or that of man, and however threatening they may at present be, (and threatening they truly are) they will pass away and leave us a long period of successful and therefore delightful culture, ere they return. It must further be remembered that marked failures in fruit growing arise from want of knowledge respecting the proper methods, from carelessness and inattention and choice of unsuitable sites for the fruit garden and the orchard. You are fully aware that persons oftentimes commence planting without due consideration of the nature and qualities of the soil. This was so in my own case. In my first attempt to grow fruit I went at it full of hope and energy and determination to succeed, without considering the adaptabilitity of the soil to the sorts of fruit I wished to produce, and of course without knowing that this was a very important and even essential consideration. A part of my grounds was light and sandy and flat, a part rather heavy. The subsoil of the former was of the same nature to the depth of four feet; of the latter at the depth of twenty inches a rich clay marl. Upon the former I tried to raise Gooseberries and Dwarf Pears, and failed. Upon the latter I succeeded. Even grapes were subject to mildew upon the light soil, not excepting the Clinton and the Isabella. Had I known at the commencement of my efforts what I know now, I should have carted the marl on to the sand, and so have made a most excellent soil. I did this afterward to some extent, and was much pleased with the result. Suppose, however, I had attributed my former failures to the difficulty of growing fruit; suppose I had hastily concluded that there was no escaping the blight upon the pear, and the mildew upon the gooseberry and the grape, it would have been wrong. Yet many do this. Many stimulated by books upon the subject, enter fiercely upon the work of planting, and are disappointed; perhaps even resolve to have nothing more to do with it as a very impracticable undertaking. But this is all a mistake. My own experience convinces me that with proper knowledge, and suitable care and diligence, success in fruit-growing is about as sure as in any undertaking under the sun. Then as to the fact of persons failing who have some knowledge, and are very careful and diligent, it will be found, I think, that they have overlooked some point of importance in their case, some speciality in their

neighborhood detrimental to fruit-growing. Many things have to be considered, and if people are too negligent to give them sufficient attention, ought they to be surprised at an unprofitable result accruing.

I do not now enter upon the subject of the varieties of fruit and their different modes of culture, reserving these for future communications, I wish to confine myself to general considerations. First—that of soil. You will agree with me that its nature and condition ought to receive the first attention. All acknowledge that it should be rich and well drained, but I will add, as above suggested, it must to ensure the desired advantage be suitable to the kinds of fruit we desire. For instance, I have now about the sixth of an acre. The soil is a very heavy clay, almost destitute, as I find from experiment, of lime. Well, this soil I know to be admirably suited to the Dwarf Pear, the Plum, and the Gooseberry, with the simple addition of lime. But grapes are my favourite, my hobby—and these I must and will raise, although the difficulties resulting from the nature of the soil are many and great. But under-draining and trenching 20 inches deep, and the application of lime and sand will much lessen them. Yet I would not face these difficulties if I had a choice of ground, and no one should do so who has. Nor should any one do so, without being prepared for and almost expecting much disappointment.

Secondly—The peculiar influences arising from the atmosphere or exposure, or the neighborhood of streams, or large bodies of water. These influences are in some instances very detrimental, in others beneficial. Those instances you mentioned are in point. Gardens situated on the Niagara River, in which the trees blossom early, and then receive a severe check from the great coldness of the air, produced by large masses of ice floating down from the upper lakes, must yield fruit very precariously—while those upon the lake shore would not only escape this, but would be free also from late spring and early autumn frosts. Those who would be very successful should weigh these things well, and if they refuse, ought not to complain of subsequent miscarriages.

Then thirdly—To know the right modes of pruning and training is essential. I recently visited the cold grapery of a gentleman in which the want of this knowledge is very apparent. The grapery is about three years old, and already there are in some vines four or five feet of naked canes. These canes will every season be lengthened until, by and bye, there will be nothing but these stems, and consequently no fruit. Even now it does not produce a third of what it ought. Still it is very possible that the gentleman may be disgusted with his failure, and with fruit growing altogether. But ought he to be? Why should people expect to succeed in Horticultural pursuits while ignorant of the proper method. No one does so in any other business. But ignorance here is no more a safeguard against loss than elsewhere. Because here and there you find a tree bearing bountifully seemingly by chance, without knowledge and without care of the owner, it is presumed that trees ought always so to do. Vain presumption. It is time for people to lay aside this idea, and to understand that to grow fruit on a large scale, year by year, knowledge and care and forethought and diligence are essential. To grow a few pears or a few grapes for one's own use is ordinarely indeed an easy task, but that is a very different thing from having a fine and profitable fruit garden. The latter I repeat cannot be had without pains, labor and expense, with these I know no more certain or delightful employment in which we can engage.

Yours,

CLERICUS.

THE APPLE CROP OF ANNAPOLIS, N. S.—A correspondent of the *Maine Farmer* gives the subjoined statistics of the apple crop of this fine county. The figures are suggestive, and it will be well for other not less favorably situated localities in Nova Scotia to go and do likewise:—

"While our Maine farmers are deploring the failure of their fruit, our Nova Scotia neighbors can now supply them with a quantity of nicer apples than we often raise. I am informed that 60,000 barrels of apples were shipped from Annapolis county in 1852. This season the crop is said to be very light by those accustomed to large crops. I will here give the condition of one orchard which I recently visited in Bridgetown. The enterprising proprietor, Wm. Miller, kindly introduced me to the orchard, and furnished the following statistics of his crop. From 200 trees he sold 600 barrels of apples in 1854, at $2,00 per barrel; in 1857, 240 bbls. at $3,00; in 1858, 420 bbls. at $2,00; this year estimated crop 200 bbls. just sold at $2.25. In the spring of 1853, he received a quantity of scions from "Vassalboro' Nursery," Maine, and engrafted them on old trees, which are now bending, and the branches even splitting

under the weight of apples. One, for instance, which was then one foot in diameter, was grafted with Baldwins, and is now loaded with six barrels at least of nice apples, which, with previous crops, will amount to sixteen barrels, sold at from $2 to $3 per barrel. I noticed trees in other orchards, and by the roadside, which were propped up to support the load of apples, while some branches which had been neglected had split down."

Miscellaneous.

The Process of Sugar Making.—The cane is cut from the fields by companies of men and women working together, who use an iustrument called a machete, which is something between a sword and a cleaver. Two blows with this slash off the long leaves, and a third blow cuts off the stalks near to the ground. At this work the laborers move like reapers, in even lines, at stated distances. Before them is a field or dense, high-waving cane, and behind them strewn wrecks of stalks and leaves. Nea, and in charge of the party, stands a driver, or more grandiloquently, a contra-mayoral with the short, limber plantation whip, the badge of his office, under his arm. Ox carts pass over the field and are loaded with the cane, which they carry to the mill.—The oxen are worked in the Spanish fashion, the yoke being strapped upon the head close to the horns, instead of being hung round the neck, as with us, and are guided by goads and by a rope attached to a ring through the nostrils. At the mill the cane is tipped from the carts into large piles by the side of the platform. From these piles it is placed carefully, by hand, lengthwise, in a long trough. This trough is made of slats, and moved by the power of the endless chain connected with the engine. In this trough it is carried between heavy, horizontal, cylindrical rollers, where it is crushed, its juice falling into receivers below, and the crushed cane passing off and falling into a pile on the other side. This crushed cane (bagazo) falling from between the rollers, is gathered into baskets by men and women, who carry it on their heads into the fields, and spread it for drying. There it is watched and tended as carefully as new-mown grass at haymaking, and raked into cocks or winrows on an alarm of rain. When dry, it is placed under sheds for protection against wet. From the sheds and from the fields, it is loaded into carts and drawn to the furnace doors, into which it is thrown by negroes, who crowd it in by the armful, and rake it about with long poles. Here it feeds the perpetual fires by which the steam is made, the machinery moved, and the cane-juice boiled. The care of the bagazo is an important part of the system; for if that becomes wet, and fails, the fires must stop, or resort be had to wood, which is scarce and expensive. Thus, on one side of the rollers is the ceaseless current of fresh, full, juicy cane stalks, just cut from the open field; and on the other side is the crushed, mangled, juiceless mass, drifting out at the draught, and fit only to be cast into the oven and burned. This is the way of the world as it is the course of art.—The cane is made to destroy itself. The ruined and corrupted furnish the fuel and fan the flame that lures on and draws in and crushes the fresh and wholesome; and the operation seems about as mechanical and unceasing in the one case as in the other. From the rollers, the juice falls below into a large receiver, from which it flows into great open vats, called defecators. These defecators are heated by the exhaust steam of the engine, led through them in pipes. All the steam condensed forms water, which is returned warm into the boiler of the engine. In the defecators, as their name denotes, the scum of the juice is purged off, so far as the heat alone will do it. From the last defecator the juice is passed through a trough into the first caldron. Of the caldrons there is a series, or, as they call it, a train, through which all the juice must go. Each caldron is a large, deep, copper vat, heated very hot, in which the juice seethes and boils. At each stand a strong negro, with long, heavy skimmer in hand, stirring the juice and skimming off the surface.—This scum is collected and given to the hogs, or thrown upon the muck heap, and is said to be very fructifying. The juice is ladled from one caldron to the next, as fast as the office of each is finished. From the last caldron, where its complete crystalization is effected, it is transferred to coolers, which are large shallow pans. When fully cooled, it looks like brown sugar and molasses mixed. It is then shovelled from the coolers into hogsheads. These hogsheads have holes bored in their bottoms, and, to facilitate the drainage, strips of cane are placed in the hogsheads, with their ends in these holes, and the hogshead is filled. The hogsheads are set on open frames, under which are copper receivers, on an inclined plane, to catch and carry off the drippings from the hogsheads. These drippings are the molasses which is collected and put into tight casks. I believe I have given the entire process. When it is remembered

that all this, in every stage, is going on at once, within the limits of the mill, it may well be supposed to present a busy scene. The smell of juice and of sugar vapour, in all its stages, is intense. The negroes fatten on it. The clank of the engine, the steady grind of the machines, and the high, wild cry of the negroes at the caldron to the stokers at the furnace doors, as they chant out their directions, or wants—now for more fire, and now to scatter the fire—which must be heard above the din, "A-a-b'la! A-a-b'la!" "E-e-cha candela!" "Puerta!" and the barbaric African chant and chorus of the gang at work filling the cane troughs; all these make the first visit at the sugar house a strange experience. But after one or two visits, the monotony is as tiresome as the first view is exciting. There is, literally, no change in the work. There are the same noises of the machines, the same cries from negroes at the same spot, the same intensely sweet smell, the same state of the work in all its stages, at whatever hour you visit it, whether in the morning or evening, at midnight or at the dawn of day. If you wake up at night, you hear the "A-a-b'la! A-a-b'la!" "E-e-cha! E-e-cha! of the caldron-men, crying to the stokers, and the high monotonous chant of the gangs filling the wagons or the trough, a short, improvisated stave, and then the chorus; not a tune, like the song of the sailors at the tackles and falls, but a barbaric, tuneless intonation.—*To Cuba and back: a Vacation Voyage.*

Preserving Eggs.—The most simple and successful method of preserving eggs for fall and winter use, is to employ a pint of lime and a pint of salt, mixed with a bucket of water, and after packing the eggs in a jar or keg, with the small end downwards, in successive layers, then carefully turn in the mixture until the eggs are covered. In our travels in Kentucky we stopped at a place where probably the largest number of fowls are kept in the State, and we were shown some small chickens that were hatched from eggs that were packed in August (1858) and preserved according to the above directions. Six of the eggs thus preserved were marked and placed under a hen, together with eight fresh laid ones. Every egg but one hatched, which was one of the marked ones. The fact was so remarkable, it led to doubts in the minds of some of the family, whether there must not have been some mistake in the matter, when the female who had the chickens in charge, and who has raised the present season about one thousand, repeated the trial, taking eight eggs from the same keg near the lower tier, and placed them under a hen with no other eggs; in due time five of these eggs hatched out strong and healthy chickens; a sixth egg was thrown out of the nest and was broken, when it was discovered that it contained a live chick. Thus it will be seen that eggs by this method cannot only be preserved from eight to nine months perfectly fresh, but that the living principle can be retained and the eggs hatched.—These eggs were put into a keg or half-barrel and headed up so as to be nearly or quite air tight, and then placed in a cool cellar, where they remained all winter.—The fresh, natural appearance of the eggs, when broken to be cooked, led to the idea of testing their vitality by an effort to hatch them.—*Valley Farmer.*

The Colonial Lumber Trade.—The lumber business of New Brunswick is reported to be just now in a very satisfactory condition. The high rates at which deals have ruled in Great Britain during the present year have caused the lumbermen to make arrangments to enter more extensively than usual into lumbering the ensuing season. The prospects for remunerating prices in the British market for the coming year are considered to be good. Although the arrivals of wood cargoes at Liverpool this season have been larger than the last, the consumption has been greater, and prices have rather an upward tendency. The stock of deals on hand in New Brunswick is said to be smaller now than for any period during the past ten or twelve years, and little more remains to go forward until the new supply comes to market. There is every probability therefore, that prices will rule higher in the Spring, provided the present demand continues. But it may be added that lumbering is at best but an uncertain and precarious business. The shipbuilding operations of the Province are pronounced to be in a stagnant state, occasioned doubtlessly to a very great extent by the sweeping change made a few years since in the Navigation Laws of the British Empire. It is hardly to be hoped that any change will be brought about in the carrying Trade of the Mother Country, so far as retaliating upon non-reciprocating nations is concerned, for many years to come, when, as the British ship-owners in a body will have it, the Shipping interests of the Empire will have been brought to the very verge of ruin.—*Halifax Herald.*

Green Old Age.—A Manchester paper thinks Lord Brougham's mind and body bid equal defiance to the torpid advances of great age. He is verging on eighty, and

yet his physical and mental vigor show no signs of decay. The last three or four years have brought about quite a change in his autumnal amusements. Formerly he left England soon after Parliament broke up, for France, when we first heard of his appearing at the Institute of Paris, under the ægis of Arago, and then hobnobbing with the occupant of the Tuilleries, whether Louis Philippe or Louis Napoleon; and finally he was announced as departing for a country seat he had at Cannes, in the South of France. He was there when Rachel died, and it is known he was very attentive and kind to her in her fatal illness. Since then he seems to have renounced France and the French, and to have dedicated his learned leisure to the edification of provincial audiences, which yield him splendid return of journalistic renown.

Norwegian Mosquitoes.—I believe there is no preventative against their bite, which is instantaneous; they dash through the smoke of strong tobacco like a fox-hound through a bulfinch; they creep under veil or gloves like a ferret into a rabbit hole. Where they can neither dash nor creep they "bide their time" with the pertinacious cunning of a Red Indian. Wherever the clothes touch the body closely, at the knees and elbows, they swarm in thousands, and bite through and through; they creep in single file up the seams of gloves, and try each stich in succession. I have seen J.'s coat and hat so covered as he walked in front, that I could at any time kill the shape of my hand in mosquitoes at a blow; and I have seen the unhappy horses so overlaid from ears to tail with a clustering mass of wings, that, with the point of my finger, I could not but immolate two or three of the blood-thirsty little demons. There is one puzzling question I cannot solve with satisfaction: What do they live on when they don't meet travellers?—*Letter from Norway.*

A Merchant Ship run into by a Whale.—Captain Baker, of the ship *Herald of the Morning*, of Boston, states that on his late passage from Calloa, when off Cape Horn, his ship had the misfortune to be run into by a large whale. The whale struck the vessel forward, staving off about seven feet of the stem as far as the wood ends, and carrying away both bobstays. The damage done was so great as to cause the ship to leak very badly. The captain was obliged to throw overboard about seventy tons of the cargo to keep the ship from sinking and both pumps constantly going. The ship finally reached Hampton Roads on the 8th inst.—*Boston Journal.*

Editorial Notices, &c.

"The Scientific American."—This is one of our most valued exchanges. We learn that Hon. Judge Mason, of Iowa, who made himself so popular with the inventors of the country, while he held the office of Commissioner of Patents, has associated himself with Mann & Co., at the *Scientific American* office, New York.

Note to Readers of the Agriculturist.—Subscribers are recommended to stich the sheet through the centre before cutting the leaves, and the pages of the Transactions can afterwards be set apart for separate binding; or, if preferable, the leaves of the Transactions may be separated before stitching the Journal.

Market Intelligence.

TORONTO MARKETS.

Thursday, Jan. 12, 1860.

The market to-day was better supplied with produce, and although not large, a fair amount of business was done.

Wheat—To the extent of about 400 bushels was sold at from $1 18 to $1 25 per bushel, the greater part having been bought at between the outside figure and $1 21 per bushel. The market was quiet and steady.

Spring Wheat—In good request at $1 00 a $1 05.

Barley comes out slowly, ahd is bought up by the local brewers, with some choice lots reserved for seed. The price is steady at 60c a 65c.

Rye—Dull and nominal, 70c a 75c.

Oats—Scarce and dearer, 40c having been paid for one load.

Peas—Were in large supply at 56c a 60c.

Pork—Steady, with an active demand at $5 00 a $6 00 for common to extra hogs, with one or two very prime lots at $6 25.

Flour—Was rather easier in view of the slight decline of Wednesday in New York, which was again recovered yesterday. No. 1, superfine, $4 55 a $4 60; No. 2, superfine, $4 15 a $4 30; fancy, nominal, $4 85 a $4 90; extra, nominal, $4 25 a 0 00; double extra, $4 50 a 0 00.

Hay has been in only moderate supply from farmers, but large amounts of imported offering prevents the market from improving. The range on Tuesday was from $16 to $23 per ton, the average price being be-

tween $18 and $20. Straw in fair supply at $9@$10 per ton.

Potatoes are freely offered, and are not very firm at rates ranging from 30@35c. per bushel.

Butter.—Fresh or roll butter is not freely brought in, but there is some excellent tub butter offering, which goes into consumption, and prices are steady at 18@20c. per lb. For tub butter, of good quality, there is a brisk demand at 15@16c. per lb, and some lots have brought 17c. by the lot.

Cheese.—There is only a moderate local inquiry at 10@12c. per lb for prime American.

Eggs are in fair supply at 15@16c. per dozen in small retail lots.

Poultry.—Turkeys are not in demand at 50@75c. Chickens 25@30c.

MONTREAL MARKETS.

Montreal, Jan. 12.

Flour—Unchanged; small sales of No. 1 superfine at $5 20@5 30; fancy $5 50, and single extra at $5 90@6 00. Receipts fair.

Nothing doing in grain of importance. Small sales Canada spring Wheat at $1 20.

Pork—Better; $17 50 offered for mess, and $18 asked.

Ashes—Dearer and active; $5 60 for Pearls; $5 65@5 70 for Pots.

NEW YORK MARKES.

New York, Jan. 12.

Flour.—5c a 10c better. Sales 500 or 600 bbls at $5 20 for superfine State; $5 30 a $5 35 for extra State; $5 15 a $5 25 for superfine Western; $5 30 a $5 40 for common to medium extra Western; $5 35 a $5 80 for inferior to good extra shipping brands round hoop Ohio. Canadian flour unchanged; sales 200 bbls at $5 60 a 6 60. Rye flour steady at $3 70 a $4 40. Receipts of flour, 282 bbls.

Grain.—Wheat is firm with rather more enquiry; sales 5,000 bushels fair Milwaukee club at $1 24. Rye quiet at 92c. Barley nominal. Corn 1c a 2c better; seles 8,000 bushels at 84c a 90c for new yellow. Oats plenty, and dull at 45c a 46½ for Canadian, Western and State.

Provisions.—Pork very quiet; sales $16 12 a $16 25 for mess, and $11 65 for prime. Beef unchanged. Lard quiet; sales 50 bbls at 10¼c a 10⅜c. Butter in far request at 12 a 17c for Ohio, dnd 15c a 24c for State.

BUFFALO MARKETS.

Buffalo, Jan. 11.

Wheat.—A fair inquiry for Spring, and holders firm at $1 08 for No. 2; white winter held at $1 35.

Corn steady; sales 3,700 bushels new at 70c. Other grains nominal.

Provisions—Small sales; Pork—Heavy. Mess reported at $16. Lard quiet at 10¼c. Dressed hogs quiet; sales, 50 Canadian, averaging 256 lbs. at $6 25.

Tallow steady; sales 60 barrels at 10¼c.

Advertisements.

FOR SALE.

A THOROUGH-BRED AYRSHIRE BULL 3 years old.

RICD. L. DENISON.

Toronto, July 30, 1859.

PETER LAWSON & SON,

THE QUEEN'S SEEDSMEN.

Edinburgh, No. 1 George IV. Bridge.

London, No. 27 St. George Street., Westminster, S. W.

ON ACCOUNT OF THE NUMEROUS applications which have been made to Peter Lawson & Son, to send their Lists of Seeds and Nursery Produce to Canada and the United States, they beg to inform the Trade in America that they are prepared to furnish them with price lists, and to assure them that any orders they may be favored with will receive their best attention.

All orders must be accompanied by Cash or Satisfactory References in Great Britain.

University College, Toronto.

THE Lectures in this Institution on THE SCIENCE AND PRACTICE OF AGRICULTURE, will commence on MONDAY, NOVEMBER the 7th, and will be continued (five lectures a week), till the beginning of April, 1860. Agricultural students can attend other courses, such as Chemistry, Geology and Mineralogy, Natural History, including Botany, English Language and Literature, &c., as they may desire.

Particulars may be obtained by applying either personally or by letter to Professor Buckland, University College, Toronto.

Toronto, September, 1859.

PRIZES FOR REPORTS.

With the view of inducing the officers of Agricultural Societies to collect and embody in their annual reports more information of a character which will be valuable and interesting to the public at large, and to persons residing in other countries, than has heretofore been the case, and to draw up the reports in a more generally correct and painstaking style than the majority of those

heretofore received, the Board of Agriculture offers the following premiums:—

For the best County Agricultural Society Report, adopted at the Annual Meeting, and transmitted to this office before or on the 1st April next, a prize of	$30 00
For the second best do	20 00
For the third best do	15 00
For the fourth best do	10 00
For the best Township Society Report adopted at the Annual Meeting, and forwarded as above along with the report of the County Society	20 00
For the second best do	15 00
For the third best do	10 00
For the fourth best do	5 00

By reference to the 42nd and 47th clauses of the Act, which was given in full in the April number of the Journal and Transactions, 1858, it will be seen that each report should consist of four distinct parts:—

1. The names of all the members of the Society, with the amount paid by each set opposite his name.

2. The names of all persons to whom premiums were awarded, with the amount of premium, and the animal or article for which it was given.

3. Such remarks and suggestions upon the Agriculture and Horticulture of the county or township, and arts and manufactures therein, as the directors shall be enabled to offer.

4. A detailed statement of the receipts and disbursements of the Society during the year. (If this is voluminous, a condensed statement or balance sheet ought to be added, showing the amount of receipts and expenditure under the several principal headings.)

It is in part three of the report, as above detailed, that improvement is mainly desirable. The majority of the reports have heretofore been sent in, without any attention being paid to this requirement of the Act at all. The remarks ought to be of such a character as to give the reader a correct idea, so far as possible, of the actual condition and progress of Agriculture, Horticulture, &c, in the County or Township, with the profits and advantages offered by those pursuits.—And in order to do this clearly, the report ought not to embody vague generalities, so much as specific statements of facts. For instance, the generally prevailing character of soil may be stated, the average value per acre, the current rate of wages for laborers and mechanics, or any other information of a similar character. If the crops have been injured, by any insect or other cause of blight, state the amount of damage done, and whether greater or less than other years. State the amount of improvement taking place in the different breeds of cattle, sheep, &c., and what breeds are believed to be best adapted to the locality. Give the details, with the cost and results, of experiments in breeding and feeding cattle for sale, or sheep farming. If any farmer has commenced the thorough draining of his land, the cultivating root crops extensively, or any other ameliorating improvement, state the fact and the results, and the supposed amount of such improvements taking place in the County or Township. State any improvements that may be taking place in the introduction of agricultural implements, the progress making in the cultivation of fruit trees, or horticultural operations, and the sucess attending it. If there is any particular improvement necessary in farm management, or for the proper development of the capabilities of the soil, let it be stated. The leading features of the annual exhibition, as a display of agricultural and mechanical products, and as showing the progress of improvements by the residents in the county or township, may also be briefly referred to.—In short, the report should be such a concise and faithful sketch, supported by such brief details and statistics as would enable the reader at a distance to estimate the general progress and capabilities of the county or township correctly.

It is not neccessary that the portion of the reports here referred to should be very long. For a County, from ten to twenty, and for a Township, from six to twelve pages of ordinary writing on foolscap paper would afford abundant space. It is not desired, however, to restrict the reports in any way. The reports, or so much of them as may be considered suitable, will be published in the Transactions, and the names of the successful competitors will be immediately announced after the prizes have been adjudged. The amount of prize will be forwarded, unless in the case of instructions to the contrary, to the Secretary or other officer of the Society, from whom the report shall have been received. It is hoped that these reports will furnish a large amount of interesting and useful information for publication in their Transactions.

Should there not be considered to be sufficient time, after receiving this notice, to get up the information, the report might be adopted *pro forma*, and afterwards amended, with the consent of the Directors. It is highly desirable, however, that the reports should be forwarded to the Board of Agriculture, if possible, some time prior to the 1st of April, the date fixed by law.

HUGH C. THOMSON,
Sec. Board of Agriculture.

Toronto, Dec. 15, 1859.

IMPROVED SHORTHORNS.

THE HON. ADAM FERGUSSON, WOODHILL, WATERDOWN, P. O., will have Seven Thorough-bred Durham Cows to calve in Spring. These cows are in calf to "ETHELBERT," bred by Samuel Thorne, Esq., and have a large portion of "DUCHESS" and "BATES" blood. They may be seen at any time at Woodhill, within a half hour's walk of Waterdown Station, G. W. R. R.

Orders for bull calves must be sent by the 1st of March. Full pedigrees will be furnished. Price of each calf $60.

Four of the Cows will be sold at moderate prices.

WOODHILL, Jan. 2nd, 1860.

THE AGRICULTURIST.

ARRANGEMENTS FOR 1860.

THE "AGRICULTURIST, AND JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA" for 1860, will be published on an entirely new system.

It will appear twice a month, and will consequently be much more useful as a medium of intelligence on all subjects affecting Agricultural Societies, and farmers generally, than heretofore.

Each semi-monthly number will consist of 32 pages, and will be printed on fine white paper.

Notwithstanding the increase of size, and of times of publication, the price to single subscribers will be only half a dollar for one copy per annum.

Further, even at this low rate, a bonus will be given of one free copy for every 10 copies ordered and paid for in advance. That is to say, for $5 remitted, 11 copies will be mailed; for $10, 22 copies; for $15, 33 copies will be mailed, and so on.

The *Agriculturist* is Post Free.

It will consequently be the cheapest paper of its kind, and contain the largest amount of reading matter of any published on this continent.

In addition to the very low terms of subscription, as a further remuneration to those who exert themselves to obtain subscribers, the undermentioned money premiums will be paid to those who send in the largest lists, accompanied with the amount, before or on the 1st day of April next. Subscriptions will be received at any time, and the amount of each list reckoned up on the 1st April. The money must be received, not merely mailed, on that day. The following are the prizes offered:—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of	$20
To the person who shall send in the next largest list	19
To the person who shall send in the next largest list	18
To the person who shall send in the next largest list	17
To the person who shall send in the next largest list	16
To the person who shall send in the next largest list	15
To the person who shall send in the next largest list	14
To the person who shall send in the next largest list	13
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To the person who shall send in the next largest list	7
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To the person who shall send in the next largest list	3
To the person who shall send in the next largest list	2
To the person who shall send in the next largest list	1

"AGRICULTURIST OFFICE,"
Toronto, November, 1859.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Advertisements—Five cents per line each insertion.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77, King Street East, Toronto.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, FEBRUARY 1, 1860. No. 3.

CONCENTRATED CATTLE FOODS.

In a previous number we showed from very careful analysis made by Mr. Lawes, of a prepared cattle food that has been advertised in various shapes both in Europe and America, that it cost weight for weight, four or five times as much as the most nutritive of the ordinary kinds of stock foods on our farms. We perceive from recent English journals, that several others, in addition to Thorley & Henri, have commenced manufacturing and puffing other kinds of prepared cattle food, so that the business is evidently progressing, and must of course be profitable in most instances, no doubt in an enormous degree. That most of these productions are valuable, scarcely admits of a doubt; but the question to the farmer is, whether the value put upon them by the manufacturers is not excessive. It is not necessary to consider whether an excessive profit is made in manufacturing them, but whether as compared with other substances ordinarily used for feeding stock, they are not enormously dear. These preparations are made up of a variety of different kinds of ordinary food, among which Indian Corn and bean-meal appear to be the principal, mixed with a small quantity of some aromatic seed—such as caraway, &c.,—for the purpose of giving the mixture an attractive flavor. These foods are sold in England at from forty to fifty pounds a ton, which is within a fourth of the price of the butchers' meat, which they are intended to produce. The materials of which they are composed are not worth more than a fourth of the price charged for these kinds of preparation.

The *North British Agriculturist*, published in Edinburgh, observes: "A comparatively new trade, cattle food, has been very active since 1858. Mixtures of carob beans, bean-meal, and of the meals of cereals, with a flavoring substance, such as coriander seed, have been vended at from thirty to fifty pounds a ton, while the feeding value may be in most cases taken at something like one half that of linseed cake, or five pounds!" Prof. Cameron, of Dublin, remarks: "This so called *concentrated* cattle food is sold for forty-two pounds a ton, while in reality it is not, at the utmost, worth seven pounds!" It is far less nutritious than either linseed-cake or rape-cake, though it is no doubt more palatable to cattle than the latter."

The following testimony of a very high

authority, Dr. Voelcker, Professor of Chemistry in the Royal Agricultural College of England, is sufficient to satisfy all reasonable doubts as to the commercial value for feeding purposes of these preparations: "Most samples of cattle food which I have hitherto examined, contain large proportions of rice-meal (the refuse of rice-pressing mills,) oat-dust, and the sweepings of flour mills, mixed with spoiled and inferior flour. The bad taste and fusty smell of the latter, are concealed by strong smelling drugs, such as anise or fennal seed, and also by bitter substances, such as gentian. In one particular sample, much recommended as food for pigs, I have found the bulk of the food to consist of crushed carrots, beans, rice, and barley-meal; this food also contained some sulphur and nitre, as well as fœnugræc, and a little anise seed; it was in fact, a regular medical powder."

It is not improbable that the value of aromatic additions to cattle food may be more correctly ascertained from observing the action and results of these mixed preparations. Professor Buckman, of the Royal Agricultural College, observes:—"We happen to know that the foenugræc seed is being used by some of the manufacturers of cattle foods, and a few pounds of these seeds ground with inferior pulse, grain, or both, impart a flavor which it would seem is highly relished by cattle; and if experience should really confirm their use, it will be no difficult matter to supply it with economy."

As one, if not more of these compounded foods has been introduced into this Province, our farmers, housekeepers and others interested in stock, will do well to consider the foregoing testimonies before making any considerable purchases. The articles in question may be good condiments, or condition powders enough, and as such might, perhaps, be carefully employed, if they were less expensive. But as a substitute for ordinary food, the thing is perfectly ridiculous. If Canadian farmers turn their soil to the best account in the production of grain, hay, flaxseed and roots, they will be abundantly able to keep in thrift and health a much larger amount of live stock, if judiciously managed, without sending to Europe for doubtful and expensive mixtures, which even there cannot be profitably employed.

OBITUARY.

With feelings of deep regret we heard of the decease of E. C. Campbell, Esq., Judge of the District of Niagara. He had not enjoyed robust health for the last few years, but was enabled to pursue with slight interruptions, his usual active pursuits. His departure from among us was sudden and unexpected, and his loss will be severely felt, not only in his own immediate district, in the welfare of which he took the warmest interest, and where he was universally confided in and respected, but by a very large portion of the community at large. The judge it appears was a native of the good old town of Niagara, where he has so long and usefully resided; his father being Fort-Major of that place for many years. In the promotion of horticulture and agriculture he took the warmest interest, and not only in the town and county in which he lived, but in various other societies established in that portion of the country and also in the Provincial Exhibitions, in which he was not only a large and successful exhibitor in the horticultural department, but also a most active and zealous helper; and was often to be seen arranging with his own hands, in conjunction with others, the various articles in his own favorite department. Those who take an active part in the management of these Provincial Exhibitions will, for years to come, deeply regret his absence from among them. In his judicial capacity, as well as in private life, the deceased commanded universal confidence and respect. He had an enthusiastic love for horticulture and rural pursuits, as his extensive gardening operations, and diligence in pro-

moting agricultural societies, sufficiently attest. The judge was also President of the Upper Canada Pomological Society, and a few days previous to his decease he forwarded to the Secretary of that body a somewhat lengthened report on fruit culture; an abstract of which we hope shortly to lay before our readers.

Mr. Robt. Baker, of Writtle, Essex.—The last English papers bring us the information of the decease of this distinguished agriculturist, in his 66th year. Mr. Baker was not only an extensive practical farmer, but also a land valuer of large experience; and took great interest as a director both of several local societies, and the Royal Agricultural Society of England, to the pages of whose journal he contributed many valuable papers. In conjunction with the late William Shaw, he originated the London Farmers' Club, and was elected its President for two years. His papers, read at its monthly discussion meetings are among the best which that useful society has sent forth to the public. Mr. Baker did much, both by precept and example, for the advancement of the Agriculture of his native county, and his loss will be long felt by the whole agricultural community.

Mr. Thos. Nuttall.—This eminent naturalist died a few months since on his small estate, at Rainhill, England. He was born at Settle in Yorkshire, 1784, and was brought up to the business of a letter-press printer. At the early age of 22 he emigrated to the United States, and from connections which he soon formed in Philadelphia, he directed his powerful mind to those subjects in natural history, which eventually placed him in a high position as an observer and explorer of the ranks of nature,—particularly in the departments of Botany and Ornithology. He explored at different times a large portion of the North American continent, often travelling alone and exposed to the many privations and dangers incident to those early days. He was for some years Professor of Natural History in the Harvard University, Boston; and contributed largely by his observations and writings, to the natural history of the North American continent. Mr. Nuttall contributed three additional volumes to that splendidly illustrated work on American trees, *Michaux's Sylva*, and soon afterwards, on the death of a near relative, returned to England, in 1842, where he continued most successfully to prosecute his studies and enlarge the boundaries of his favorite pursuits. His nephew was imbued with a similar spirit to himself, and had been devoting several years to the flora of the East Indies. Last Fall he sent his uncle a large case of plants, who in his anxiety to open it, unfortunately overstrained himself, and from the time of this injury he gradually declined. Mr. Nuttall was one among many instances of the successful pursuit of knowledge under difficulties; having reached a high position in science from a very humble beginning, and died as he had lived, universally beloved.

Correspondence.

LAND DRAINAGE.

Aikenshaw, Jan. 10, 1860,

To the Editor of the Agriculturist,

Sir,—I hope you will give the accompanying communication a place in your columns. I look upon it as particularly valuable as a proof of the continued interest our esteemed friend Mr. Marks takes in the advancement of Agriculture; and as the subject of draining cannot be kept too prominently before the readers of the *Agriculturist*, it may call forth some remarks, or the results of some experiments that may be of use.

Yours obediently,

E. W. THOMSON.

January 5th, 1860.

To E. W. Thomson, Esq., President of the Board of Agriculture.

Dear Sir,—In the year '54, you may recollect, I put forth in the *Canadian Agri-*

culturist a paper on draining land, wherein it is recommended that the drains should be eight yards apart; since that time I have gathered some valuable remarks on agriculture by Mr. Mechi, of Tiptree Hall. On Draining, as follows:—Mr. Mechi says in his speech at East Essex, in Oct. '46, he lately saw a field of twenty acres perfectly drained by a single drain; it was not spring water, but a single drain took all the rain water that fell on the field. To know when every part of the field was perfectly drained, he made holes in various parts of the field and placed pipes in them to the depth of five feet and rammed earth round them, down this telescope of pipes he put a rod like a yard measure but longer, and he thus found before he cut the drain that the level of the water was within eighteen inches of the surface. Having cut a single drain through the field, he then found that the water in these trial holes began to lower more rapidly near the drain and less rapidly farther from it, but ultimately there was no water nearer the surface than the depth of his drain, four feet six inches.

The result was, that the whole field was drained by one small and inexpensive drain where others would probably have cut them 20 or 30 feet apart, and multiplied the cost tenfold. Therefore, a man before he presumed to say what drains his land required should cut his test holes, and by examining the rod, from time to time, he would see what was drained and what was not. That was important, because he had himself thrown hundreds of pounds away, and he was sure others had thousands, and he wished to prevent this in future.

Please cause this valuable information to be printed in the Canadian *Agriculturist*.

I remain, dear Sir,

Your obdient servant,

J. B. MARKS.

COUNTY & TOWNSHIP SOCIETIES.

To the Editor of the Agriculturist,

Sir,—You would oblige me and other officers connected with Township Agricultural Societies by stating in your next number what authority or power, if any, County have over Township Societies.—In perusing the statutes, others as well as myself maintain that Township Societies are a corporate body as distinct from and independent of the County Societies, as these are of the Townships; and all the connection between them being the forwarding by the County Society of a statement of the amount of subscription, and annual report to, and conveying the Government grant from the Board of Agriculture, but having no right to dictate as to the management of their affairs, far less inflicting fines and penalties. One thing I am confident of, that Township Societies do more to promote good agriculture than the County Societies, and if the County grant were divided among the Township Societies and the County Societies done away with altogether, it would prove more beneficial to the country.

Yours, &c.,

D. ROBERTSON.

[Remarks.—Although we cannot agree with our correspondent as to the expediency, or even admissibility, of abolishing the County Societies, we willingly insert his communication, for the sake of affording information to such societies as may not have studied the act fully in regard to the relations subsisting between the County and the Township Societies. Our correspondent is quite right in his view of the matter. Under clause 47, it is the duty of the Township Societies to send in their report of proceedings for the past year to the County Society in time to be laid before the annual meeting of the latter in the third week in January. Under clause 43, it is the duty of the County Society to receive such reports. Under clause 57, it is the duty of the County Society on or before the 1st day of May, in each year, to receive in deposit the subscriptions of the members of the Township Society for the year, and to pay the same to them along with their just apportionment of the Government grant, so soon as the County Society shall have received the latter from the Board of Agriculture. Under clause 44, it is the duty of the County Society to reply to queries from the Board of Agriculture, or the Minister of Agriculture, and as a necessary consequence to this it would, we think, follow that the Township Societies ought to afford any information the County Society might request of them, in order to be enabled to answer the queries from the Government or Board of Agriculture satis-

factorily; this point, however, is not explicitly stated in the act. Under clause 40, the president of the Township Society is *ex officio* a director of the County Society, provided that the Township Society shall have contributed ten dollars annually to the funds of the County Society. We have reason to believe that this proviso was meant to be, *either* that their should be so many members of the Township Society also members of the County Society, as that their subscriptions to the latter should amount to at least ten dollars, *or* that they should contribute ten dollars by vote of the Directors; and in this sense the clause has been interpreted in several instances. Further than in these points there is no connection between the County and Township Society, or dependence of the one upon the other, that we are aware of. But the full compliance with the requirements of the law on the part of the Township Societies, is the condition upon which they become entitled to a share of the public grant; and if their organization is not in accordance with the act, or if they do not send in their report, and deposit their subscriptions at the times, and in accordance with the requirements therein laid down, the County Society may refuse to apportion them any share of the public grant. But of course in case of any difficulty arising between a County and a Township Society, through inadvertance or otherwise, it is much better for both parties, if it can be done without infringement of the law, to endeavor to arrange it amicably, rather than in a spirit of litigiousness.—Eds.]

CULTIVATION OF MILLET.

St. Catherines, Jan 14th, 1860.

To the Editor.

Dear Sir:—In the December number of the *Agriculturist*, I see an article by a subscriber, dated Whitby, 6th December last, on the Cultivation of Millet, and as I know you are always desirous, through your very useful Journal, to give all the information you can to the farming community. I the more cheerfully give you my experience on the cultivation of Millet.

The first time (as far as I can recollect) I saw the cultivation of millet recommended, was in the Albany *Cultivator*, in the year 1837, page 114. Subsequently I have seen it very highly recommended in different Agricultural works. Seeing so much said in its favor, I came to the conclusion in the spring of 1857, to make a trial and test its merits. I sent to Hamilton for the seed, and sowed about a quarter of an acre, (it is believed that 8 quarts per acre is sufficient; my impresison is, that it is not enough to sow broad-cast. The ground I sowed on is a heavy rich loam, having been sown with carrots for some years before, consequently all foul weeds were completely eradicated, and the ground left, as I thought, in excellent order for the reception of any crop we raise in this part of the country. I ploughed the ground early in May, as soon as it was in a fit state for ploughing, sowed the seed immediately, (broad-cast) and passed the roller over. The seed was long coming up, and when the plants made their appearance they looked sickly, and for some time grew slowly, so that the weeds got in the ascendant. However, in the course of time, the plants shot a-head, and attained to the height of three or four feet; but when the heads began to mature, the birds began to collect, and in a short time all the feathered tribe, I think, within miles, had collected on my millet ground; and as the heads matured, stripped off the grain, beginning at the top of the head, showing clearly their partiality for this kind of grain. Seeing I was not likely to save any seed, I cut the crop and bound it up in sheaves, and fed it to my stock the following winter. All kinds of cattle seemed to relish it much, and ate it with avidity; but although the ground was rich, and every attention paid to the cultivation of it, I had not a half crop, and that only fit for fodder, not having had any seed that matured.

My own impression is that millet cannot be raised in this part of the country to produce seed, on account of the depredations of birds. It was my intention at the time to make another trial—not to allow it to go to seed, but merely for the purpose of soiling, and in doing so, I had come to the conclusion of throwing up drills, say 27 inches a-part, the same as for turnips or carrots, in order that the cultivator might pass between them from time to time, as the crop required cleaning. By this mode a seed drill could pass along the drills, and the sowing would be completed. The cultivator would not only keep down the weeds,

but would facilitate the growth of the millet plant.

I have made these few remarks in the hope that more information may be elicited in the cultivation of this plant.

Many farmers have different modes of raising the same kind of crop, and when a farmer finds himself successful in the cultivation of any particular crop, it seems to me to be a duty incumbent upon him to impart all the information possible to his brother farmers, showing the kind of soil, the mode of manuring, and also the general mode of cultivation, with any other remarks that may be thought necessary. This would be of great importance to the country at large.

No doubt many farmers in the Province from long experience have attained great knowledge in raising some particular crop, when the great mass of the farming community are totally ignorant of the mode of cultivation. This should not be so. Your valuable journal is always open to receive and to promulgate all information connected with the welfare of the Province; and surely that individual who does not impart that knowledge so essential to the well being of the Province, we would naturally suppose could not have the welfare of his country at heart. A light should not be kept under a bushel.

Yours, truly,

JOHN GIBSON.

[We are obliged to our respected correspondent for his communication, and heartily reciprocate the sentiments contained in the conclusion. Our pages are open to farmers generally for the interchange of thought, and to compare notes, with the results of experience. Any information or statements from practical men, in all the departments embraced by this publication, will be always welcome.—EDS.]

In the fall of the year 1857, a single grain of Australian wheat was planted in Noriega Valley, situated in the hills ten miles east of Oakland, opposite San Francisco. It was carefully cared for, and in 1858 thirteen ounces of wheat were reaped from the one grain. In 1858 these 13 ounces of seed were planted in drills, and the past summer there were reaped from them one hundred and seventy-five pounds of clean wheat, an increase in the last year of two hundred and thirty fold.

Agricultural Intelligence.

THE WIREWORM.

THE GRUB.

(*Continued from Page* 30.)

Although the grub, or caterpillar of the wireworm, has not been seen to come out of the egg, it has been noticed while very small. It is then like a semi-transparent short thread; but as it becomes older, its skin becomes harder and more opaque, and of a yellowish or brownish hue. It attacks the stem of a plant, just above the root, about an inch below the surface of the ground, and eats straight into the heart of the stalk.

They are frequently found eating their way upwards inside the hollow stalk of such plants as the carnation. They feed incessantly and most voraciously, stopping neither night nor day. And yet if watched they seem to get no bigger; but they do grow, and the manner of their growth is very curious.

Their skin does not grow like the skin in men, which, as we all know, becomes larger without our seeing any change taking place upon it. The human skin is gradually and imperceptibly changed and renewed,—the outer surface being worn away by degrees, and cast off and replaced by a fresh growth from beneath. So far as our eyes can tell, a man is covered with the same skin which held him when he was a baby, and it shows when he is old the mark of the cuts on his fingers which he perhaps got when he was a boy at school. It is different with caterpillars. Their skin does got grow with their growth. It is like a dress made for them; it stretches a little like any other dress, but does not increase in size. As it resembles a dress in this respect, so it does in others. Let us compare the dress of a growing boy with the skin of a caterpillar. The boy's dress gets tighter, and shabbier and shabbier, as he grows older and bigger, till at last it has to be thrown off altogether and a new one got in its place. This is what happens with the caterpillar or grub. Its skin becomes tight and shabby too, and it must get a new skin as well as the boy a new dress. So it does; but there is this great difference between the boy and the caterpillar: the boy wears no dress in his inside; but the mouth, the throat, the stomach, and intestines, as well as the very breathing vessels of the caterpillar—are all lined with skin as well

as its outside. The caterpillar, therefore, has not only to get a new a skin for the outside, but also a new skin for all those parts in the inside, for there is no difference between the mode of growth of the skin inside and of that outside. Neither of them grow larger; and it will easily be understood that if the skin of the outside alone was renewed, and that of the inside left in, the caterpillar would not be much the better of the new coat to his back. The growth of all parts of the body must proceed at the same time. So the caterpillar gets rid of its skin, both outside and inside. The first symptom that it is going to do so is, that it gives over eating, and becomes restless and uneasy for a day or two. At this time portions of the skin of the inside are seen to be voided along with what it has been feeding on. How it has got these off we cannot see, but we can see how the process goes on on the outside. There must be a crack in the skin, and the old skin is ready to burst. An opening in the skin would not be of much use to it, if the skin stuck to the body as closely as ours does, or even as closely as its own skin *usually* does.—But a new skin has gradually grown below the old one, and is only loosely attached to it. The caterpillar then twists, and wriggles, and jumps about in the most extraordinary manner, the effect of which is, that it becomes loose. It then bends down its head to its tail, and pushes out its back till the skin begins to split, which it does longways in the middle, a little behind the head. When it has once begun to crack, it continues to puff itself out until the slit becomes large enough to allow the creature to creep out of its skin. This it does back foremost bent like a loop,—the head and tail coming out last. But there is a part from which the old skin has to be removed more inaccessible even than the intestines —namely, the air-tubes through which the insect breathes. These could not be cast off and voided like the skin of the intestines, or coughed up like something sticking in the throat; for insects do not breathe through the mouth, but through small holes which are arranged in a row (usually ten on each side) along the sides of the body,—one on each side of the ring or the segment, except the two first, of which the body is composed. From these holes fine tubes proceed, extending throughout the body, and it is through these that the insect breathes. The skin of these must come off; and if the cast skin is carefully looked at, it will be seen that they have been all drawn off like the fingers of a glove, and are still adhering like threads to the cast skin.

Immediately after the grub has come out, it increases in size with the most astonishing rapidity, so much so, that in three or four hours it has expanded to more than twice its former length and bulk. In the course of a few hours, the soft new skin has begun to harden; it then ceases to increase in size, and grows no larger till it again changes its skin some weeks or months afterwards, when the same process is again gone through.

As soon as the new skin has becoms hardened, the grub recommences eating with redoubled verocity, often beginning by eat-eating up its old skin. It is supposed that the grub of the wireworm changes in skin, either three or four times, this being the most frequent number in beetles, although the number of times varies greatly in different insect, some changing as often as eight or ten times. The process is the same at each time, the grub increasing about twice its size on each change. The period which elapses between each change, varies according to circumstances. If the grub has plenty of food, and a suitable degree of heat and moisture is maintained, the changes will take place sooner, while, if these circumstances are not favourable, a long time may elapse between them; and it is a necessary consequence of this, that the duration of the life of the caterpillar varies, for its life is composed of the periods between its changes.*

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*This is a very important point to be kept in view in the economy of the wireworm. It is usually said, that the duration of its life in the grub state (during which alone its ravages are to be dreaded) is five years. Now this statement entirely depends on the authority of a Swedish naturalist, named Bierkander (who kept the grubs feeding on the roots of wheat for five years, when they emerged as the perfect insect), supported by the observation of Curtis, who says that he kept some for twelve months, during which they scarcely increased in size. But it is obvious that this result is only to be depended upon, if the insects were kept in equally favourable conditions as to food, moisture, temperature, &c., as they would have had, had they been at liberty—and this could hardly be expected, few plants or animals in captivity flourishing as well as when at liberty. The proper degree of moisture is one of the things on which more depends in the rearing of insects than almost anything else; and it is obvious, that with insects living in the earth in garden-pots, it must be nearly impossible to regulate this with accuracy. The alternations between too dry and too

When the grub is full-grown, it is of a pale, ochreous colour (darker when dead), with a few hairs scattered over its polished shining skin; it is semi-cylindrical, the back being convex, the belly more flat. It is divided into thirteen rings or divisions—the first of which is the head, on it there are two little horns or antennæ on each side of the mouth, which is small, and behind them a little black speck, which might be mistaken for an eye, but which does not appear to be so, insects which live in the dark usually not being provided with eyes, at least during that portion of their lives which is spent in the dark. The first three divisions or segments after the head, have each two small legs below, making six legs in all; these legs are four-jointed. Each of the divisions, except the two first, has a small breathing hole (spiracle) in each of the front corners—the last division has two larger ones and beneath it a false leg or prehensile foot, which assists it in walking.

THE PUPA OR CHRYSALIS.

After the caterpillar has changed its skin the number of times which nature has assigned, it undergoes another change more surprising still. It leaves the roots of the plants on which it has been feeding, and descends a considerable depth into the ground. It then forms an oval cell a little larger than itself, composed entirely of the surrounding particles of soil glued together, smooth in the inside, but not lined with silk as is the case with many other insects. This cell is called the cocoon. Inside of it, it again goes through the process of casting off or creeping out of its skin, but instead of coming out of the old skin of the same shape as before, it comes out now in a totally different form. It had a mouth before, it has none now. It had legs before, (short and small though they were), these are now gone; and it has entirely the appearance of a mummy swathed up. We can see the traces of something like parts of a beetle under the skin, as we can see something like the outlines of the limbs and head, but it is a nearly motionless, oblong form.

This state is called the chrysalis or pupa, and while in it, it eats nothing, but remains motionless in its cocoon or cell. This is the stage intermediate between the grub and the beetle, and during it some very mysterious change takes place in its structure. If it is broken open shortly after it has gone into this state, little difference will be found in its structure from that of the grub. But a little later, its tissues will be found to have melted all down into a liquid milk-like pulp, among which, doubtless, traces of the principal nerves and vessels may be found, though the mass is disorganized and structureless. If examined at a still later period, it will be found that the milky pulp assumes the form of the vessels and structure of the beetle. It is like a paper manufactory. The old rags must be reduced into a pulp, before they can be made into the new paper.*

The wireworm usually goes into the pupa state in the month of July, and remains in it two or three weeks, coming out as a beetle about the first fortnight in August. But although this is the ordinary period, it is even more liable to variation than the length of time between the changes of skin in the grub. They often passed the winter

damp must be incessant, and the growth of the grubs would necessarily be greatly retarded. Judging from the duration of the larval life in other insects, it appears more probable that its real duration in the wireworm is only two or at most three years. It is doubtful whether the grub continues to feed during the winter—some say that they have known wheat suffering from their attacks during the entire winter. This appears doubtful; for during severe frosts they descend into the soil like other grubs which live over the winter, retiring deeper as the cold increases, and remaining in a torpid state till spring returns, when they revive with an appetite proportioned to the duration of their fast.

*These facts show that the theory entertained by the older writers, and even still held by some modern authors on the subject of the transformations of insects, is wholly erroneous. They supposed that the outer skin of the grub enclosed a succession of several skins under it each more delicate and soft, and indistinct than the one above it, but gradually like the expanding leaves of buds of plants, growing more substantial as they received more nourishment, and were more exposed to the day. In other words, they likened them to the rider in a circus who throws off one dress after another, appearing successively in a different guise—all the dresses having been ready one below the other from the first. But the laws of the development of organic structure are now better known, and from them we learn, what the pulpy state of the pupa, while preparing for its last change, might have suggested, that there is no such previous storing up or anticipatory preparation of organs or structure, but that each new change, whether a mere change of skin, or a change of form, is developed just as it is required.

in this pupa state, buried as we have described, and thus protected from the casualties and inclemency of the season. What the circumstances are which influence the duration of this state, are only imperfectly known. Where a brood of caterpillars has been hatched at the same time, fed on the same food, subjected to the same treatment, kept in the same place, and passed into the pupa state nearly at the same time, they yet differ as to the time when they become perfect insects. Most of them do so in a fortnight, others not before the same period next year, and some not before the third season; but all, whether appearing this year or next year, come out at the same period of the year. Temperature and moisture are the principal agents in this. The knowledge of this fact ought to guard us against neglecting precautions, in the belief that they are unnecessary, because the insect has apparently disappeared for some years.

(*To be Continued.*)

SMITHFIELD CLUB CATTLE SHOW.

This great annual exhibition of fat cattle, sheep, and pigs, agricultural implements, &c., was held in the usual place in Baker Street, during the second week of December. Upon the whole, it is not considered in the estimation of several competent judges, to have been superior, perhaps, in some respects, hardly equal to previous years. The stock was not so extremely fat as used to be the case formerly, so that their natural points were more visible, and the quality of meat better for human food. The interest usually felt in the show by the general public, does not seem to have abated. We have been disappointed of an original report; but the following from the *Times*, (our usual authority in these matters, the *Mark Lane Express*, not having come to hand) will be interesting to our readers:—

The problem how capacious a girth and how ponderous a mass of fat may be aggregated upon the limbs and ribs of an animal by dint of corn, meal, roots, oil-cake, and multifarious foods is giving way to the more utile one of how much prime meat can be furnished most thriftily to the hungry yet dainty consumers of flesh populating this kingdom of great cities. And though the microscope may spy out unhealthy tissues and membranes in the prize carcases—though a few monstrous obesities may protrude themselves in the cattle classes, and collops of greasy bacon, more fit for the chandler and soap-boiler than for breastfast-eating epicures, may disguise the proportions of some unsavoury swine, yet the general character of this year's fat stock show is, that of well-bred animals of the most valuable description, so far developed as to prove their capability of laying on flesh in the best places, and displaying the kindly properties and fineness of bone indicative of thriving and profit. In Baker-street Bazaar, not a coarse or plain beast is to be found: and but few animals in any department of the exhibition are wanting in that refinement of form manifesting the breeder's judgment as well as the feeder's cost and care. This fact is of high importance, because such a first-class order of competing specimens tells us throughout our country the herds and flocks, here so widely and comprehensively represented, must be in an improving condition, and that the possession of the most profitable properties by their stock is an object more eagerly and extensively sought by our graziers. Pedigree in beef is a great thing, whatever it may be accounted in the generations of human kind; and a "Duchess," a "Duke of Oxford," and a "Master Butterfly," impress their special characteristics upon their progeny, so that the peculiarities of each "strain" of a particular blood are known. A great deal of the "good breeding" enters an animal by his mouth, and the show steer eats cake from his youth upward; but it is undoubtedly the judicious and long-continued improvement of the frame and proportions of animals by selection and the other arts of breeding, far more than any advance in the mode or means of feeding, that has enabled such magnificent specimens to be produced.

In glancing through the cattle classes on the present occasion, we observe that there are fewer mere butchers' animals sent to chance a fancy market in the show-yard, and thus the classes of stores and oxen are in a more forward state of fatness and good feeding, and the excellence of the exhibition is still further raised by the stock of several crack local owners, who have not ventured to Baker-street before.

The gold medal in the oxen and steer classes goes to the animal that won the same distinction at Birmingham in the past

week, and the gold medal in the cow and heifer classes likewise goes to the heifer which achieved the victory at Birmingham. Mr. Shirley's steer is a surprising animal in beauty and proportions at such an age—2 years, 6 months, 27 days; his girth is 8 feet 7 inches, and the quality of his flesh is exceedingly good. Lieutenant Colonel Townley's herd may now be considered as ranking after the great herds of the Collingses, of Bates and Booth; and although his beautiful animals have entered into competition only during the last 10 or 11 years, they have won some five-and-twenty gold medals, 60 silver ones, and several thousand pounds in money prizes. The gold medal heifer of the present year, young as she is (three years and seven months) is amazingly fat, but cylindrical and marvellously well-proportioned in form; she has a remarkably handsome head, fine horns, a beautiful calm eye, light bone, and a quality of meat that was firmer and better before the incessant handling and poking of her tormenting admirers began at Birmingham show. But her most remarkable merit is that she not only possesses nearly every point in rarest measure, so that it is remarked "a pound more flesh on each side would make her perfect;" but all tendency to a narrow chine—the characteristic defect of the short-horn breeds—is lost in an unparalleled outspringing and spreading of chine, shoulder and rib; her girth attaining to no less than 9 feet 1 inch, while the breadth of her chest, giving that expansion and capacity of lung showing strength of constitution, is really extraordinary, her fore legs being just 1 foot 5 inches apart. Why, the great Durham ox, the wonder of half a century back, and one of the grandest presents ever bequeathed by dame nature to her agricultural devotees, measured at 6 years old only 17 inches between his fore legs, while his mighty girth stretched to a compass of but 11 feet and an inch; and of late years only one or two of the noblest oxen—and we believe, not any of the fat cows even of the largest frame—have equalled this pretty damsel of a heifer in the length of her girdle. There is no foundation for the suspicion that she may possibly imitate her celebrated relative of two years ago, by going home from a fat stock exhibition, and living to produce a calf.

His Royal Highness the Prince Consort, who paid a long visit to the Bazaar in the afternoon, and expressed to Mr. Brandreth Gibbs, his high satisfaction at the excellent character of this year's show, has entered the lists rather strongly both with horned cattle and pigs. His beautiful Devon steer bred by himself, and which took the first prize in his class at Birmingham, takes the second prize in his class at Baker-street, being fairly beaten by Mr. Farquarson's large and exceedingly handsome steer.—His Royal Highness exhibits a very superior steer in class 1., and is again competing in the Hereford oxen class, but is met by one of the first animals in the show, belonging to Mr. Heath, truly a prize animal of great depth of frame. In the short-horn heifer class, His Royal Highness shows a very handsome and well proportioned heifer, which was again beaten by the splendid heifer already named, of the unconquerable Col. Towneley. His Royal Highness also contributes a Hereford ox to the extra stock classes, to which it does great credit.

Here is Mr. Stratton again winning a prize in the cow class—another of our most eminent short horn breeders, whose celebrated herd, it is said, was produced mainly from a Warwickshire cow, with no proofs of good pedigree except her own personal attractions. The Broad Hinton pastures have sent out animals of that wonderfully straight, rectangular, and handsome form for which the breed is noted, which have taken nearly 500 local and other prizes, amounting to between £3,000 and £4,000, beside seven gold and 15 silver medals.

The cattle classes are not, as a whole, superior to those of former years. The Devons show in considerable numbers, and constitute a good show of the breed. The Herefords are exceedingly good, and some specimens deserve especial notice — Mr. Shirley's steer, Mr. Heath's ox, Lady Foley's and Mr. Naylor's cows—these cows standing respectively as they did at Birmingham, Mr. Naylor's taking first prize and Lady Foley's second prize. The short-horn classes are well filled, and in exceeding good character; Colonel Towneley's cow transcending all her predecessors. The Marquis of Exetor's ox is a fine specimen of the breed; indeed, many fine animals are exhibited in these classes. The Sussex, Norfolk, and long-horned breeds were not very attractive, but the Scots, with their dun and shaggy coats and extended upturned horns, obtained great notice. The polled breeds are good. There are some excellent Welsh cattle and heifers, and the cross and mixed breeds show well. The extra cattle class is commendable.

"Sheepe," says old Fitzherbert, "is the most profytablest catell a man can have;"

and to this day the farmer gains more by the flock that yields him fleece and flesh than from the heavy ox or gormandizing swine. Such have been the refinements, however, upon the original breeds, that pure-bred sheep, while indispensable for maintaining a true stock, are no longer considered the most profitable for grazing. The delicate and comely Down is not altogether the most prolific of meat and wool, and the rage is now evidently for a more business like sheep—a cross-bred carrying mutton of all the delicacy of flavour and tenderness of fibre of the Southdown upon the robust and noble frame of a Cotswold, and clothed with wool not deteriorated in fineness of staple, though lengthened and augmented in weight by the Leicester and improved Lincoln breeds.

The Downs cannot well be more beautiful or appear in better character than they do on the present occasion; but they are certainly eclipsed by the immense size and ponderous proportions of the cross breeds. The Leicesters and Long-wools show well, and the former in singular variety; there are a few splendid specimens of the breed. Wool, however—such an important part of the animal—is of less account here than at a summer show of breeding stock. It still remains true that short-wool sheep may be carved into a perfectly symmetrical contour by the aid of the shears, and judges are beginning to expose and denounce particular pens for this unfairness.

The pig—that greedy devourer, yet useful scavenger and saveall—is so happily constituted that, notwithstanding the opprobrium of his manner of life, when once slaughtered we find "all of him is nice;" and economic still, if he cannot be all smoked hams or bath chaps, pickled pork or cured bacon, yet he gives even his offal parts to make the dainty pie and sausage, and to be fashioned into innumerable homely luxuries. But what our cooks would do with the extraordinary lumps of porcine matter exhibited here in such abundance we cannot divine. His Royal Highness the Prince Consort takes the first prize in one class. The three animals exhibited are all very much alike, and we imagine they constitute as admirable specimens of the race as can be found; they are of the kind called the small breed. The show of pigs is a full one; it is remarkably good, and, as usual, attracts great attention.

Although the club limits its attention to the development of fat stock and the encouraging of improved breeds, it has long recognized the value of a collection of agricultural machinery in the galleries appropriated as a mart for manufactures. And such is the interest taken by the public in this department, and the large amount of business transacted by all our chief implement makers and seedsmen at the annual metropolitan gathering of agriculturists, that we must add a few remarks on the principal features of the implement show, though, of course, in a hurried march through the innumerable stands and stalls, with their articles packed and piled one above another, it is impossible to see a tenth of the novelties really present, as the crowds of visitors and intending purchasers will find to their inconvenience during the week.

The most momentous question of farm mechanics, that of steam power husbandry, is represented by the invention of Mr. Halkett, who proposes to lay permanent rails across our fields at a vast outlay, in order to cheapen and facilitate all processes of tillage; Mr. Smith who adheres to his cheapest and simplest form of apparatus; and Mr. Fowler, who is now supplying the neatest, lightest, and completest machine for steam-ploughing and scarifying, after serving a long and costly apprenticeshp in his endeavor to get the greatest "duty" out of the motive power, to employ a minimum length of rope, and work with the least amount of labour and expense. During the year, especially since the Warwick meeting, the subject has grown rapidly, and after years of quiet experiment and public racing trials, a great many practical testings have been made of steam culture in the regular routine of farm management; the inventors being now prepared, we understand, with testimonials so numerous, comprehensive, and convincing, that their publication will completely surprize the agricultural world. Numbers of sets of the Woolston apparatus and of Mr. Fowler's have been supplied to English farmers, colonial and foreign planters, and others.—Some of the machines have been in use for four years; scores of farmers have started them in the hands of their common labourers; many adopters of the system have cultivated a thousand acres each—one as much as 1200 acres. The work done has included ploughing, subsoiling, deep trench ploughing, "smashing-up" of hard foul stubbles, and stirring soil that has been previously tilled; and these operations have been performed upon all descriptions of soil in all possible conditions and circumstances. Thus the fullest data will be forthcoming as to the cost of working, durability of the mechanism, liability to damage, and so on. The experience of the many uses

of the steam cultivator is entirely in favour of the new power; and extended practice has demonstrated that the expense of steam ploughing and grubbing is still lower than the estimate formed from the shorter trials. Heavy clay land can be ploughed by steam with a saving of one-third to one-half the cost by horses, and lighter soils with a saving of one-fourth. A valuable paper in the *Royal Agricultural Society's Journal* has lately shown from elaborate statistics what the average expense of farm-horse labor really is—an item hitherto extremely variable in different localities, and under different managers; and hence we can now take the comparison between the steam engine and the draught animal in definite quantities, and the superior economy of the one can be expressed in money value. But apart from the pecuniary saving—varying much, of course, with the particular form of apparatus you may adopt—the merit of steam tillage comes out in the testimonials alluded to in a much more important form. Not only is the wear and tear of a steel wire rope (that much feared item) found so inconsiderable that a thousand acres, it is alleged, have been broken up without damaging the rope—the rate of deterioration depending much upon the quaility of the metal of which the rope is made, the care in working, and the stoniness of the land; but advantages are found that out-balance considerations of expense. Farmers state that they are more independent of unfavorable weather; their wheat seeding was completed a full month earlier, and their spring corn stubble grubbed up and cleaned far faster than before; additional crops have been interloped in the rotation, without risk of getting a farm full of weeds; and what is more important than all this put together, their wheat stubble for fallow has been tilled in the hot autumnal season, and so much of the long rigmarole of Spring ploughings and scufflings anticipated and prevented as will repay three times the cost of the steam work and give a clearer fallow and a forwarder root crop—worth anything in the present ticklish state of our turnips.

The reaping machines exhibited include the Hussey "Champion," Crosskill's improved side delivery "Bell," Samuelson's "Britannia" self-raking-off reaper, Burgess & Key's reaper with screw platform, and their new platform, and their new hay mowing machine. It is supposed that no less than 4,000 reaping machines were engaged in cutting our last harvest, their value being now fully appreciated in all our chief corn-growing districts.

Among the ploughs—in manufacting the various parts of which the most ingenious and improved mechanical means are applied to working in wrought and cast iron, as at Belford and Ipswich — we have Messrs. Howard's, Messrs. Ransome & Sim's &c., and the notable new implement of Messrs. Hornsby, which, by its unexpected triumph at Warwick, has made as much ferment among the agricultural public as that once exhibited by the sudden appearance and conquest of Messrs. Tuxford's engine at Carlisle.

Portable steam engines are exhibited by Messrs. Tuxford, Clayton & Shuttleworth, Ransome & Sims, Smith & Ashby, and others; and threshing-machines by Messrs. Hornsby, Humphries, Garrett, &c. The stands—which owing to the demand for space, are limited to two lineal feet each, letting in the aggregate for some £700—comprize the usual immense variety of drills, chaff-cutters, mills, screens, haymakers, carts, crushers, pulpers, pumps, cultivators, and the beautiful collection of cereal specimens, seed samples, and wonderful roots on the stalls of Messrs. Lawson, Gibbs, Sutton, Skirving, and others. One principal novelty is a Canadian revolving harrow, said to be specially effective.

Horticultural.

TROUBLES IN THE FRUIT GARDEN.

No. 2.

Raising grapes by horse power! Why not? In these days when manual labor is in every department discarded as much as possible, and the power of the animal or the engine is substituted for that of man; when almost every operation of Agriculture is, or will be, performed by forces of far greater energy than the unaided hands of man can exert, why should the process of the gardener be shut out from the employment of agencies so potent. Some such idea seems to have seized upon the mind of a noted English grower of grapes, and to have led him to send into the world a volume in which he strongly argues in favor of horse power. This volume fell into my hands about the time when I was pondering the ways and means of obtaining a large supply of this universally favoured fruit. But reader, do not be puzzled. You are wondering how horse-power can be made available for so good a purpose—can be applied to such a use. You are thinking perhaps of speedily drawing the stem in

some way to a desirable length. Whipple-trees and log chains fill your eye—but discard them. There is no drawing, it is all forcing. Nor is it done by the animal while yet in possession of his natural vigor and faculties, but when these have all departed. You will think that I am speaking in a riddle. Let us look then at what the grape requires. Long, long ago old Virgil sang—

> A fine loose earth is what the vines demand,
> When wind and frost have help'd the laborer's hand,
> And sturdy peasants deep have stirred the land."

And still the doctrine holds good. It is even in this year of grace 1860, *sound* and *true*, and *necessary* doctrine, that the soil in which you can grow good and abundant crops of grapes *must* be *loose, dry* and *friable*. It is true that vines grow in swamps, and often most luxuriantly, and sometimes, though not often, bear profusely. But these are in a state of nature, and their fruits also, sour and crabbed enough. But those we would have are no longer so. These have been brought out, and by constant and careful cultivation have become sweet, luscious and tender, and to preserve them so they must receive the same unremitting care and attentions, and be ensured and encircled with the same conditions. So we say, first and foremost, the soil must not be compact, heavy nor water soaked. But something more is requisite. The same old author adds:—

> "Next, when you layers in your vineyard make,
> Mix some rich dung, and shells and pebbles break,
> Spread the good soil with liberal hand aronnd
> And trench them deeply in the lightened ground;
> Surperfluous moisture thus glides thro' the earth,
> And healthy vapors aid the tender birth."

A knowing hand was this old fellow. No modern discovery is at variance with his maxims—on the contrary, they are confirmed by the experience of the most intelligent cultivators. Your soil, then, must be rich, as well as friable. It must be dunged as well as freed from standing water. But the best way to obtain this richness of earth,—that is the question. That was it which troubled the mind of the author of "The Culture of the Vine under Glass," by J. Roberts, and the result of his cogitations was, that he struck out a new method. What this method was, I can best tell you by detailing my own proceedings, since I followed his directions very closely.

But let me pause a moment to say that experience is a pretty stern teacher in grape-growing, as in everything else. She may be, and doubtless is, a very wise, and able and good one, but she is sternly and terrible rough in her handling. That you, reader, may be saved the pain of becoming her trembling pupil, I have taken pen in hand, and now to the process. Having selected a well sheltered spot, some 60 by 18 feet, it was dug perhaps 30 inches deep.—At the bottom were laid one hundred and twenty bushels of bones, to obtain which the boys with laudable zeal, scoured two townships. On these were placed several horses, and to keep them company a prize bull and a span of oxen. On these again were deposited road scrapings, sand and black mould, fourteen inches in depth. This having been levelled all was ready for planting. Such was Mr. Robert's prescription. The vines were obtained. Black Hamburgs, Black St. Peters, Zingindal, Royal Muscadine, Golden Chasselas, Pitmaston, White Cluster, Marcready's Early White, Red Frontignac and Tokay. They grew the first season marvellously. By the autumn the canes were long and stout and bid fair to bear all that it was prudent to permit them to do. The following season they were lifted, washed, carefully and constantly pruned, thinned and trained. They bore abundantly; many beautiful bunches, beautiful for size and color, rewarded the expenditure of toil and expense. But the next season, the third, in which I looked for a large and remunerating crop, what came then? Then when the roots had fairly reached the soddened mass, and their tender extremities were scorched and burnt, then mildew overspread them all. There was no exception; Isabellas and Catawbas, and the little hardy black cluster, which were treated in the same manner, one and all, presented a mass of blackened foliage and mildewed fruit. This was raising grapes by horse power with a vengeance. I know better now. No fresh horse goes into my border now to force an unnatural growth, and then to burn the delicate fibres just as they stretch out to seize the proffered nourishment. Not that the possession of one or many such carcases is not desirable, but before applying them, they should be covered with mould and suffered to decay; such mould will, indeed, be rich, and if applied to the plant in small quantities at a time, will nourish it and cherish it to its heart's content. I tell you all this dear reader in confidence. I have never told it before. I cannot now wonder at the wry faces of those who beheld my preparations, nor at their solemn asseverations, that they would never eat grapes raised by such a method. Alas they never had the chance.

Mildewed vines and fruit are a source of

sore trouble and disappointment to many. Nor is it easy always to account for its appearance? A friend of mine for years had gathered abundant crops of the sweetwater, when it suddenly mildewed and became worthless. Downing, than whom, few are better or safer guides in horticulture, speaking of this disease attacking the foreign vines, grown out of doors,—but you, reader, ask in amazement, where in the world should they be grown if not out of doors? Why in doors to be sure. Never, unless you have a very sheltered spot, try to grow the foreign vines in the open air. But if you have such a spot, do not waste your strength upon the Sweetwater, when you can so easily obtain the equally hard and very far superior Royal Muscadine. But Downing says: "That an intelligent cultivator, living in a warm and genial corner of Canada West, had been more than usually successful for several seasons in maturing several varieties of foreign grapes in the open air. At length they began to fail, even upon the young vines, and the mildew made its appearance to render nearly the whole crop worthless. Last season this gentleman gave one of his grape borders a *heavy dressing of wood ashes*, and he had the satisfaction of raising a crop of fair and excellent grapes." So we say, look to your soil, that it be dry, deeply dug, loose and rich, and that there be wanting neither lime nor potash in the soil; for these are *so* necessary to the grape. Yours,

CLERICUS.

P.S.—It is not difficult to understand why the condition of solid masses of decayed matter, such as that produced by the carcases, would be very injurious. The manure would be too sharp, too pungent. Guano applied in small quantities it is well known is highly nutritious, but what roots could live in it in a pure state. You might as well expect them to grow in a vial of strong hartshorn. There is a fault into which amateur and novices in gardening sometimes fall. Because a little of a thing is good, they imagine a great deal must be better. But it is a great mistake. Prudence in the application of manures, cannot be dispensed with, if a firm vigorous growth is to be ensured. No doubt some soils will stand, and perhaps require what would be an overdose to others. I am not sure that an underlayer of fresh carcasses would not be beneficial to a heavy clay soil in an eminent degree, while in a light soil they would burn and destroy. This is a question upon which the Editor can, no doubt, throw much light, and it is an important one.

HORTICULTURAL HINTS AND MEMORANDA FOR FEBRUARY.

"WINTER'S still here, with purpled nose and hands,
And shakes his flaky locks, and snows his lands,
How bright at morn, when nightly drizzlings freeze,
The fairy paradise of glassy trees,
Prismatic beam and crackle in the breeze."

Cold, stern winter still holds his frigid grasp, and little more can be done in this climate than what was noticed last month. Preparations, however, should be well considered, and decided on, with reference to the coming activity of spring. Much may be done by way of providing manure for a garden previous to the advent of spring, by collecting leaves, the scourings of ditches, and other materials of a vegetable or animal nature that are to be found, more or less, around the homestead, and which are commonly suffered to run to waste, including the refuse and liquid portions of dung heaps, stables, &c. Upon light soils manure made from cows is better than that of horses, as it tends to consolidate and stiffen soils that are loose and dry; whereas horse manure warms and opens such as are cold and heavy. A due mixture, however, of animal manures, with leaf mould, plaster, wood ashes, lime, &c., is generally more efficacious than such as have only a few ingredients; and by a little forethought and attention, much may be done in this way at a comparatively little cost.

As the raising of a few early vegetables, salads, &c., in our cold, late springs, furnishes the table with what are felt at such a time, to be real luxuries, we would recommend such of our readers as possess ordinary conveniences to set about the formation of a hot bed. By a small outlay, with attention and perseverance, a sufficent amount of these things may be raised to meet the wants of a family. The following directions from the pen of Mrs. Loudon, will be found quite practicable in this country:—

FORMATION OF HOT-BEDS. — Though nearly all the kinds of manure which have been enumerated may be used occasionally for hot-beds, the only materials in common use in gardens are stable manure, dead leaves, and tan. The first of these, which

is by far the most general, consists partly of horse-dung, and partly of what gardeners call long litter, that is, straw moistened and discoloured, but not decayed. The manure is generally in this state when it is purchased, or taken from the stable, for the purpose of making a hot-bed.

The necessary quantity of manure is procured, at the rate of one cart load, or from twelve to fifteen large wheel-barrowfuls, to every light, (as the gardeners call the sashes of the frames,) each light being about three feet wide; and this manure is laid in a heap to ferment. In about a week the manure should be turned over with a dung-fork, and well shaken together; this operation being repeated two or three, or more times, at intervals of two or three days, till the whole mass is become of one colour, and the straws are sufficiently decomposed to be torn to pieces with the fork.

The size of the hot-bed must depend principally on the size of the frame which is to cover it; observing that the bed must be from six inches to a foot wider than the frame every way. The manure must then be spread in layers, each layer being beaten down with the back of the fork, till the bed is about three feet and a half high. The surface of the ground on which the hot-bed is built, is generally raised about six inches above the general surface of the garden; and it is advisable to lay some earth round the bottom of the bed, nearly a foot wide, that it may receive the juices of the manure that will drain from the bed. As soon as the bed is made, the frame is put on and the sashes kept quite close, till a steam appears upon the glass, when the bed is considered in a fit state to be covered three or four inches deep with mould; observing, if the bed has settled unequally, to level the surface of the manure before covering it with earth. The seeds to be raised may either be sown in this earth, or in pots to be plunged in it.

The proper average heat for a hot-bed intended to raise flower seeds, or to grow cucumbers, is 60°: but melons require a heat of 65° to grow in, and 75° to ripen their fruit. This heat should be taken in a morning, and does not include that of the sun in the middle of the day. When the heat of the bed becomes so great as to be in danger of injuring the plants, the obvious remedy is to give air by raising the glasses; and if this be not sufficient, the general heat of the bed must be lowered by making excavations in the dung from the sides, so as to reach nearly to the middle of the bed, and filling up these excavations with cold dung which has already undergone fermentation, or with leaves, turf, or any other similar material which will receive heat, but not increase it. When the heat of the bed falls down to 48° or lower, it should be raised, by applying on the outside fresh coatings of dung, grass, or leaves, which are called linings.

When hot-beds are made of spent tanner's bark or decayed leaves, a kind of box or pit must be formed of bricks or boards, or even of layers of turf, or clay, and the tan or leaves filled in so as to make a bed. Where neatness is an object, this kind of bed is preferable to any other; but a common hot-bed of stable manure may be made to look neat by thatching the outside with straw, or covering it with bast mats, pegged down to keep them close to the bed.

The culture of *Mushrooms* for early use, the making of catsup, &c., is beginning to attract attention in this country, and the product is regarded by many as a great delicacy. Such of our readers as may be desirous of attempting the raising of this production, will find the following directions of service, taken from *Buist's Family Gardener*. It will readily be observed that some of the remarks on the winter cultivation are not quite applicable to this climate. Mushroom spawn can be purchased at most seed stores in our principal towns.

Culture.—Of late years, the cultivation of this luxury has become so simplified, that it is in the power of every farmer and cottager to grow the article for use or sale. Any time in October or November, collect from the stable daily the fresh droppings, throw them into a heap, which prevent from heating violently, by frequent turnings, and spreading it out thinly, defending it from rain or water of any kind. When the quantity of one, two, or three loads (according to resources) has accumulated, and has lain in a heap two or three weeks, (which time it will most likely require for all the parts to get into an equal fermentation), as soon as it is observed that the fiery heat and rank steam of the dung are gone off, it is ready for use. Mushrooms can be grown in cellars, sheds, stables, or in any other such building, where they will be protected. Where it is intended to cultivate them permanently, a covered shed will be found the most convenient place in which to perform the necessary work. For this purpose a dry situation should be

chosen, the more sheltered the better, on which to build a shed of sufficient dimensions. A bed four feet wide, and twelve feet long, will give an ample supply for a moderate-sized family. The shed may, however, be erected ten feet wide and sixteen feet long, giving space for working materials, and two beds if required. The shed should run from north to south, having a close roof, and weather-boarded. With the exception of four apertures as windows, to be covered with shutters, this erection might be made ornamental, having a portion of it for a tool-house. Having marked out the space for the bed, throw out the earth about six inches deep, laying it regularly at the side, and if good, it will do for earthing the bed. In the trench, lay four inches of good dung, not too short, for forming the bottom of the bed; then lay on the prepared dung about six inches thick, regularly over the surface, beating it down firmly with the back of the fork. Put on other six inches, and so on till eighteen or twenty-four inches thick. In that state it may remain ten or fifteen days, during which time the heat should be examined about the middle of the bed, by thrusting a small stick in several places, and when found of a very mild heat, the bed may be spawned. The spawn bricks for this purpose should be broken regularly into pieces about an inch and a half or two inches square. These pieces are best put in with the hand, raising the dung up a few inches with the one, while with the other the spawn can be laid in and covered. This ought to be done in every six inches of the surface of the bed. If the sides of the bed are made of a sloping form, they can also be spawned. After spawning, level the surface with the back of the spade, beating it gently, after which it may be earthed. Procure that of a sandy, loamy nature, if from a pasture, so much the better. Break it up and make it fine, laying it on two inches thick. Level it very neatly with the rake, and beat it closely and evenly. When the whole is finished, the bed must be covered a foot thick with good clean straw or natural hay, over which lay mats or canvas in severe weather. Examine the bed every few days, and if the heat increases, diminish the covering of straw, which is better than to take it off altogether. In about five weeks, if the bed be under proper cultivation, Mushrooms will make their appearance, and in two days more they will have grown to a sufficient size for use. Some people cut them, but it is decidedly better to give them a gentle twist in the ground and draw them out, filling up the cavity with a little fine mould, gently pressed in level with the bed. This method of gathering is much better than *cutting*, as the part left generally rots and breeds insects, particularly the wood-louse, which is very destructive to Mushroom beds.

Sometimes it happens that a bed suddenly ceases to be productive. This may arise from various causes, but most frequently from the cold state of the bed in Wiuter, or a dryness of soil. In the former case, an additional covering should be given, in the latter, water in a milk-warm or tepid state should be applied moderately, for two or three mornings in succession. After each watering leave the covering off for about an hour. Soft water should be used for the purpose. In Summer the beds will require watering every two days, though in Winter they may not need it in as many months. A good bed will be productive for three months, though it may occasionally happen to wear out in half that time.

From these observations, an ingenious mind can make a Mushroom bed in a multitude of situations, all obtainable where there are cellars, stables, or other buildings. We would not despair even in the open air during Winter, covered with plenty of litter, under a few boards to ward off cold rains. In Spring and Summer, any quantity may be grown in this way.

It will be observed, in the cultivation of every other vegetable, we either sow or plant some evident material of reproduction; but in the cultivation of Mushrooms, we neither sow nor plant any antecedent production of seed, plant, or root, yet it is certain that Mushrooms are reproduced by a process in which the dung of certain animals forms the chief instrument, and on the goodness and strength of that ingredient, in whatsoever way it is made, chiefly depends the crop. We are aware that this vegetable appears in certain situations without any apparent cause, though we feel fully satisfied that there are inert ingredients that only require a combination of influences to produce certain results, and these results in nature are unerring.

The young Horticulturist should never desist from making moderate and wel-considered experiments. Let him never suppose that perfection has already been attained. Acumen and perseverance should be pre-eminently conspicuous in the gardener, who has many vicissitudes by weather, insects, and accidents to encounter, and he should be prepared with resources to resist them all.

Editorial Notices, &c.

THE AGRICULTURIST POST FREE.—Some of our subscribers have recently informed us that the Postmasters, from whom they receive the AGRICULTURIST, have been charging postage on its delivery, under the impression that it was their duty to do so under the new postage act. We were fully aware that we were correct in stating the "AGRICULTURIST" to be exempt from postage, but in order to place the matter at once upon a satisfactory footing, and prevent any mistakes on the part of the Postmasters, in future, we addressed a communication to the Postmaster General's Department, asking for an official statement that the AGRICULTURIST is post free. This we have now obtained. It was received too late for insertion in this number, but will appear in the next. In the meantime all concerned will please notice that the AGRICULTURIST, as a purely agricultural journal, is post free under the law, when mailed direct from the office of publication.

SHORT HORNED CATTLE.—Parties desirous of obtaining animals of this celebrated breed, would do well to pay a visit to the Hon. A. Fergusson, of Woodhill, who advertises in another column some cows and bull calves for sale this Spring. Mr. Fergusson's herd is well known to be select, and largely imbued with the blood of the best families of Shorthorns.

AGRICULTURAL SEEDS, &c.—We beg to call the attention of our readers, and Agricultural Societies in particular, to Mr. Fleming's advertisement in the present number. Societies may now have the opportunity of purchasing seeds that may be relied upon for being fresh and genuine at *wholesale* prices.

We also direct attention to Mr. Simmer's advertisement, in the same line of business.

THE AGRICULTURIST—TO SOCIETIES AND CLUBS—In sending orders with lists of names, parties will oblige by giving eleven names for each five dollars remitted, so that we may know to whom to address the eleventh copy. When a parcel is to be addressed to one individual we send 11 copies for each $5 received. When parties send orders without accompanying them with the cash, intending to remit that as soon as the full list is made up, we send only the exact number ordered, leaving to the parties to remit us $5 for each 11 copies as soon as their list is complete. We give these explanations in order to prevent confusion or mistake.

Market Intelligence.

TORONTO MARKETS.

Saturday, Jan. 28, 1860.

The attendance on the market on Saturday was limited to a few teams. Two loads of fall wheat were bonght, one at $1 20, and the other at $1 25.

SPRING WHEAT was sold at $1 00 a $1 02. These rates were not, however, a fair test of the market.

OATS are quiet, selling at 38c a 40c.

The Pork market is firm. Hogs, well fed, weighing 250lbs., were bought last week at $5 87½ a $6 25; over that and equal to 280 lbs., $6 30 a $6 40 in a few cases. Lower qualities brought $5 25 a $5 70 per 100lbs.

BARLEY 60c a 65c per bushel.
RYE 70c a 75c.
PEAS 58c a 61c.
POTATOES 30c a 35.
HAY $17 a $24 per ton.

BEEF—Very extra animals have brought $5 50 a $6 00; but the ruling price for first class beef is $5 00 a $5 25. Second rate animals $4 50, and some have been sold as low as $3 00 a $3 50 per 100lbs.

SHEEP scarce at $4 a $5 each.
LAMBS $3 a $4 each.
CALVES plentiful at $4 a $5 each.

BUTTER—Roll butter is more freely offered, and is steady at 18c a 20c. Tub is not in such good request, and is rather dull at present at 15c a 16c for No. 1.

DRIED APPLES.—A. M. Smith & Co., advertise a nice lot of dried apples at $1 75 per bushel of 22lbs., wholesale, and $2 00 in small lots.

MONTREAL MARKETS.

MONTREAL, Jan. 28.

FLOUR very dull and sales limited to small parcels of best No. 1 superfine, which are taken slowly at $5 15 per bbl. Fancy is held at $5 30 a $5 40, and extra $5 80 a $6 20 for May delivery. 2,000 bbls have changed hands at $5 25 for No. 1 superfine. No buyers at over $5 20.

GRAIN—Wheat; small sales of Upper Canada spring at $1 16 per 60lbs. Peas—Sales of shipping parcels at 80½ per 66 lbs, closing firm.

ASHES in demand at $5 80 for pots; $5 75 for pearls. Receipts rather liberal.

BUFFALO MARKETS.

BUFFALO, Jan. 28.

The market for all descriptions of produce continues dull and nearly nominal.—Nothing is doing in wheat. Corn is dull and depressed. Oats nominal. Rye and Barley nominal. Provisions quiet; sales 100 bbls uninspected mess pork at $16 00. Dressed hogs also quiet, with retail sales at $6 25.

NEW YORK MARKETS.

NEW YORK, Jan. 28.

FLOUR dull and drooping; sales 3,000 bbls at $4 95 a $5 05 for superfine State; $5 20 a $5 30 for extra State; $4 95 a $5 05 for superfine Western; $5 20 a $5 30 for common to medium extra Western; $5 65 a $5 75 for inferior to good extra shipping brands round hoop Ohio. Canadian flour unchanged; sales 200 bbls at $5 50 a $6 75. Rye flour steady at $3 75 a $4 45.

GRAIN.—Wheat very dull and without sales of moment. Rye quiet at 91c a 92c. Barley dull; sales at 70c. a 83c. Corn quiet and unchanged; sales at 78c a 80c for new, white and yellow. No receipts. Oats dull at 45c a 46 for Canadian, Western and State.

PROVISIONS.—Pork firm at $16 37 a $17 00 for old mess; $11 75 for old prime, and $13 62 for new do. Beef steady and unchanged.

BRITISH MARKETS.

LIVERPOOL, Jan 11.

BREADSTUFFS quiet. Flour had limited sale; Western Canal 23s a 24s; Philadelphia and Baltimore 24s a 25s. Wheat—moderate consumptive business; white and mixed 8s a 11s 6d; red 8s 6d a 10s per 100 lbs.—Corn — average consumptive demand; white 38s a 39s; yellow 32s 6s; mixed 31s 6d a 32s.

PROVISION MARKET.—Beef not so animated this week. Pork—American has attracted more attention; prime mess Eastern, per bbl of 200 lbs, 60s a 65s; old U. S. prime mess, Western, repacked, 50s a 60s. Lard 57s a 59s. Ashes—pots 27s 6d. Sugar steady at 95¼ a 95½.

Advertisements.

QUEEN'S SEEDSMEN.

PETER LAWSON & SON.

EDINBURGH, 1 George IV. Bridge.
LONDON, 27 Great George Street, Westminster, S. W.

ON ACCOUNT OF THE NUMEROUS applications which have been made to PETER LAWSON & SON, to send their Lists of Seeds and Nursery Produce to the United States and Canada, they beg to inform the Trade in America that they are prepared to furnish them with

PRICE LISTS

and to assure them that any orders they may be favored with will receive their best attention.

All orders must be accompanied by Cash, Satisfactory References in England, or may be forwarded through

CRAIG & NICOL,
No 6 Bowling Green, New York.

JANUARY, 1860.

SEEDS! SEEDS! SEEDS!

AS the season is near at hand for parties requiring GARDEN & FIELD SEEDS to look out for the best to be had, I would beg to call the attention of all, and at present, particularly of WHOLESALE PURCHASERS, to my fresh stock which is now about completing; as for quality and extensiveness it cannot be surpassed by any establishment in the country.

Wholesale priced catalogues (for the trade only) are now ready, and may be had on application.

Catalogues for this season, containing many new and rare acquisitions, together with numerous useful remarks and hints for the raising of Vegetables from Seed, &c., will also be ready in a fortnight.

Orders from a distance attended to with usual care and despatch.

J. A. SIMMERS,
Seedsman.

Corner of Front St. and West Market Place.
TORONTO, Jan. 30, 1860.

YONGE STREET SEED STORE AND FLOWER GARDEN,

Established 1836.

Fresh Garden, Field and Flower Seeds, for Spring sowing.

THE Subscriber begs to inform his friends and the public, that his stock of Fresh Seeds is now complete, and very extensive, embracing almost every sort of Seed that is adapted to the country.

The stock of Agricultural Seeds is large and well selected, and the vitality of each sort being fully tested, the genuineness of the seeds may be fully relied upon.

Comprising a large stock of:—Spring Wheat, Spring Tares, Tartar and Poland Oats of the most approved kinds; Field Peas, including Golden Vine, and other approved sorts, White and Black Eyed Marrow Fats; Barley, two and four-rowed; Imported Purple and Green Top Swedish Turnip, Imported White Globe do., Imported Yellow Aberdeen do., Imported Six-weeks or Stubble do., Imported Red Round, Red Globe and several other sorts of Turnips; Long Red and Yellow Globe Mangel Wurzel; Sugar Beet and Field Parsnip, Large White Belgian Carrot and Spring Rape; Long Orange, Red, Surrey, and Altringham Carrot; Timothy, Orchard, and English Rye Grasses; Red and White Dutch Clover; French Lucerne, Cow, and Hungarian Grasses, Alsike or Perennial Clover; Yellow and White Millet; Early Potatoes of the most approved sorts; Corn, 8 rowed Early Canada, King Philip, Yellow Dutch, and several other sorts.

Horticultural Books and Garden Tools, Draining Tools, One Horse Ploughs, and Cultivators of all kinds.

The Subscriber has also a full and general assortment of all kinds of Garden Seeds suitable for the country, a catalogue of which, with directions for sowing seeds, can be had gratis.

Merchants and Agricultural Societies ordering seeds in bulk will be supplied at wholesale prices.

Complete assortment of Garden Seeds neatly put up in small papers, with directions for sowing, and sold by the box, containing 150 papers, at very moderate prices.

Twenty packages of Flower Seeds, choice sorts, will be sent free by post to any part of the province, to the address of any party remitting $1, free of postage, or 25 packages, postage unpaid.

JAMES FLEMING,
Seedsman to the Ag'l As. of U. C.

Toronto, February, 1860. 6-t

YONGE STREET SEED STORE.

CHOICE VEGETABLE & FLOWER SEEDS FREE BY MAIL.

THIRTY SIX VARIETIES FOR TWO DOLLARS.

THE Subscriber, wishing to give parties who reside at a distance an apportunity to test the quality of his Seeds, will, on receipt of $2, free of postage, send free to any Post Office in Canada, 24 Full Sized Papers of VEGETABLE SEEDS, many of them containing half an ounce of seed, and 12 Papers of Choice FLOWER SEEDS, with Descriptive Catalogue and Box included—the seeds to be of my own selection. None but the most useful and desirable varieties will be sent.

JAMES FLEMING.
Seedsman to the
Agricultural Association of U. C.

TORONTO, Jan., 1860.

To Agricultural Societies, &c.

THOROUGH-BRED NORTH DEVON BULLS to sell or let for the season.

"Colonel," 569, A. H. B. The Colonel took the first premium as a yearling at Brantford.

"General," 571, A. H. B. The General took the first premium as a two-year old at Toronto.

Apply to
DANIEL TYE.

Wilmot. Co. Waterloo,
Jan. 3, 1860.

IMPROVED SHORTHORNS.

THE HON. ADAM FERGUSSON, WOODHILL, WATERDOWN, P. O., will have Seven Thorough-bred Durham Cows to calve in Spring. These cows are in calf to "ETHELBERT," bred by Samuel Thorne, Esq., and have a large portion of "DUCHESS" and "BATES" blood. They may be seen at any time at Woodhill, within a half hour's walk of Waterdown Station, G. W. R. R.

Orders for bull calves must be sent by the 1st of March. Full pedigrees will be furnished. Price of each calf $60.

Four of the Cows will be sold at moderate prices.

WOODHILL, Jan. 2nd, 1860.

THE AGRICULTURIST.

ARRANGEMENTS FOR 1860.

THE "AGRICULTURIST, AND JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA" for 1860, will be published on an entirely new system.

It will appear twice a month, and will consequently be much more useful as a medium of intelligence on all subjects affecting Agricultural Societies, and farmers generally, than heretofore.

Each semi-monthly number will consist of 32 pages, and will be printed on fine white paper.

Notwithstanding the increase of size, and of times of publication, the price to single subscribers will be only half a dollar for one copy per annum.

Further, even at this low rate, a bonus will be given of one free copy for every 10 copies ordered and paid for in advance. That is to say, for $5 remitted, 11 copies will be mailed; for $10, 22 copies; for $15, 33 copies will be mailed, and so on.

The *Agriculturist* is Post Free.

It will consequently be the cheapest paper of its kind, and contain the largest amount of reading matter of any published on this continent.

In addition to the very low terms of subscription, as a further remuneration to those who exert themselves to obtain subscribers, the undermentioned money premiums will be paid to those who send in the largest lists accompanied with the amount, before or on the 1st day of April next. Subscriptions will be received at any time, and the amount of each list reckoned up on the 1st April. The money must be received, not merely mailed, on that day. The following are the prizes offered:—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of..... $20

To the person who shall send in the next largest list..... 19

To the person who shall send in the next largest list..... 18

To the person who shall send in the next largest list..... 17

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To the person who shall send in the next largest list..... 4

To the person who shall send in the next largest list..... 3

To the person who shall send in the next largest list..... 2

To the person who shall send in the next largest list..... 1

"AGRICULTURIST OFFICE,"
Toronto, November, 1859.

FOR SALE.

A THOROUGH-BRED AYRSHIRE BULL 3 years old.

RICD. L. DENISON.

Toronto, July 30, 1859.

University College, Toronto.

THE Lectures in this Institution on THE SCIENCE AND PRACTICE OF AGRICULTURE, will commence on MONDAY, NOVEMBER the 7th, and will be continued (five lectures a week), till the beginning of April, 1860. Agricultural students can attend other courses, such as Chemistry, Geology and Mineralogy, Natural History, including Botany, English Language and Literature, &c., as they may desire.

Particulars may be obtained by applying either personally or by letter to PROFESSOR BUCKLAND, University College, Toronto.

Toronto, September, 1859.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Advertisements—Five cents per line each insertion.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, FEBRURAY 16, 1860. No. 4.

THE ECONOMY OF FARM YARD MANURES.

In a country like Canada the farmer must look chiefly to his own farm-yard for keeping up the fertility of his fields, and the increase of his crops. He is not in a condition to go largely into the market for purchasing foreign manures; and if he were so, it is doubtful whether such importations would prove profitable. There are two vital points which should ever command his attention: first, to pursue such a system of cropping as will not unnecessarily weaken the stamina of the soil, and secondly, carefully to collect all sorts of organic substances on the farm, with earthy and mineral matters, to form a mineral compost, and to pay constant attention to the preservation of the manure made in the stables and yards of the homestead. It is too much the fashion now-a-days to look abroad for the means of manuring the land, while materials close at home are neglected,—and which are sometimes a positive nuisance,—that may with a little care and trouble, and without much expense, be made into a compost, and thus largely minister to the growth of future crops.

On farms that have not been exhausted by a scouring system of cropping, purchased manures ought not to be necessary, except, perhaps, for the raising of root crops, a department of Canadian agriculture that profitably admits of both improvement and extension. When guano, crushed bones, superphosphate of lime, can be got of *good quality* at a moderate price, everyi mproving farmer should more or less avail himself of them for this purpose. And here *quality* of culture, rather than *extent*, should be the primary consideration. By a liberal and judicious system of management, as many turnips, for instance, may be grown upon a single acre, as under a contrary course will be ordinarily produced from two or three. The cost per bushel, therefore, will be found much in favor of high culture. The chief value of root crops consists in their enabling the farmer to sustain a large number of animals in better condition than he otherwise could, and thus adding to his manure heap, on which he must mainly depend for increased returns of hay and grain.

The *dung heap*, therefore, must be considered the Canadian Farmer's sheet anchor, and nothing should be left undone to increase its quantity and improve ts quality. The former can only be accomplished by keeping the arable portion of the farm in good heart, thereby producing

not only more grain, but a greater amount of hay and straw,—which with a liberal supply of roots, will enable the farmer to keep a larger number of animals, which are to be regarded as manufacturers of manure.

But it is of the latter condition, the *quality* of the manure, that we designed more particularly to speak. In this respect also, there is indeed much room for improvement. During our cold, dry weather in winter, farm-yard manure is not exposed to much waste or deterioration, and it may be put out into the field in separate cart loads, without much risk of loss. Even animal substances we find under these conditions of temperature and moisture run but very slowly into decomposition, and consequently the escape of ammonia into the atmosphere is prevented. The amount of rain too, in our winter months, is not generally so large as to cause much waste of the manure exposed in our yards and heaps, by washing away its saline and soluble portions. The great danger from this cause is in the spring, or the first breaking up of winter, when the rapid thawing of the frozen ground and the sudden conversion of snow into water, accompanied often by heavy rains, may be seen to convert the more valuable portions of farm-yard dung into stagnant pools or running streams, the water of which is so strongly impregnated with saline and organic matter, as to assume a dark-brown, and sometimes even an absolutely black color. Now what a lamentable waste is here going on, under our daily observation, and at our very doors! By this repeated drenching of the farm yard and dung heaps, the manure, before it is applied to the crops, is often denuded of one-half of its fertilizing power. Now we ask our farmers to prevent this. How is it to be done, some may ask? Much of this waste is owing no doubt to defective arrangements in the farm buildings, which are generally erected, with little regard to any digh degree, of not only preserving the manure, but even of the comfort and health of the animals, and the proper economy of their food.

Without asking our farmers to do, what perhaps the majority have neither the means nor inclination of doing—to erase their old buildings, and put up new ones on a better system, (a most desirable and practicable object, however, in some cases,) much can be done towards mitigating the evil complained of, by the exercise of a little ingenuity and forethought. By collecting all refuse matter about the homestead and on the farm, in connection with the bedding of animals, and the litter in the yards, all of which is more or less impregnated and intermixed with the solid and fluid excrements of the cattle; and putting these materials into a heap, so as to ensure a moderate degree of fermentation, covered by absorbing substances, such as half-rotted straw or leaves, liberally sprinkled with plaster or charcoal powder; *a much larger quantity of superior manure of home production*, can be obtained on the spot where it is required for application, than is now the case on ninety-nine farms out of every hundred. The principal thing is to prevent the heavy rains washing away into the swales and streams the liquid or best portion of the manure. By furnishing buildings with eve-troughs, and making a cheap tank or two, and especially by absorbing with porous substances the liquid matter as it exudes from the heap or yards, thereby preventing its absolute waste; these and other expedients that will naturally suggest themselves to every thoughtful mind, as adapted to special circumstances, would in a few years do wonders in effecting the increase of our crops and herds, and consequently the profits and improvement of Canadian farming.

SALES OF LIVE STOCK IN ENGLAND IN 1858-9.

The following items gleaned from several of the principal sales of Short-horn cattle and Sheep, will be interesting to many of our readers, who will see that

pure bred stock command high prices at home, and consequently that the risk and expense of importing them to this country must be very great. Several Canadian farmers have had sufficient enterprise to import from Britain a number of very fine animals, while others have obtained a similar object through stock from the States. In consequence of the monetary pressure that has been so severely felt of late, we fear that these enterprising operations have not been so satisfactory, in point of profit, as could be desired; but as the tide of affairs has now taken a decided turn for the better, matters will doubtless improve. The profits of Canadian farming, and therefore the principal means of public prosperity, must be chiefly sought in the increase and improvement of our flocks and herds. Our farmers will consequently consult their own interests and that of the country, by giving more earnest attention to this important department of their pursuit. Mr. Stone has some very fine animals that, considering their cost and breeding, can be obtained at a moderate price, and we see that the Hon Adam Fergusson announces bull-calves of his superior Short-horns for the comparatively low sum of $60 each.

In 1858, 25 bulls from Mr. Booth's celebrated herd were *let* for 3000 guineas; and the bull Hopewell was let for two years for 200 guineas a year. A son of this bull, Baron Hopewell, was sold in Ireland for 300 guineas, to Col. Towneley. The Lamp of Lothian was sold in Dublin for 200 guineas. A cow named Eugenie, her calf, and young Master Butterfly, were sold to the Emperor of the French for 500 guineas; Baltic, a young bull from Bessie, one of the cheapest cows at Lord Ducie's sale, for 120 guineas; and St. Patrick, a bull bought for 60 or 70 guineas, by Mr. Drake at Sir C. Knightley's sale, for no less a sum than 600 guineas, in Australia.

From the sales by Mr. Strafford of the herds of Mr. Crisp, Mr. Cartwright, Mr. Allerton, and Mr. Bate, during the past year, we cull the following particulars as illustrating the current value of good stock. At the first of these sales, Hawkesworth, a two-year old bull, was sold for 200 guineas. Zierow, a yearling, fetched 180 guineas; and Manfried, a five-year old bull, reached the price of 200 guineas. Picotee and Lama, heifers, fetched 100 and 150 guineas, respectively. At Mr. Cartwright's sale, five cows and heifers were sold, varying from 10 months to 6 years old, at prices averaging upwards of 100 guineas; and the second Duke of Cambridge, a four year old bull, reached 140 guineas. At Mr. Harvey Combe's sale, Cobham Park, 35 cows and heifers, 17 heifer-calves, all by Marmaduke, and 11 bulls and bull-calves, constituted the herd, which sold for 4838 guineas, averaging £80 12s 4d each, being thus about on a par with the herds of Mr. Ambler, Mr. Majoribanks, and Sir C. Knightley, which sold: 50 for £84 each; 59 for £90 each; and 78 for £80 each respectively. The 35 cows and heifers sold for 2719 guineas, averaging £81 11s 4d each. A remarkable feature was the price reached by the calves, all from Marmaduke—17 heifer calves reached 1253 guineas, averaging £77 7s 10d each.—Moss Rose, the calf of Cambridge Rose 6th, only eight months old, fetched 260 guineas! Eleven bulls realised 866 guineas, £82 13s 3d a piece. Marmaduke was bought by Col. Pennant for 350 guineas. At Mr. Wetherall's sale, 35 cows and heifers averaged £77 15s 9d each. The 13 bulls and calves fetched £60 3s 6d each. The whole 48 animals of all ages averaged £73 4s 6d each. Among the prices, some very long ones were given, as 91 guineas for a seven months' bull-calf; 150 guineas for a five weeks' heifer-calf, and 300 guineas for a yearling heifer.

With reference to sheep, we give the analysis of the two following sales:—***Leicesters***—Mr. Sandy's sale at Holme Pierrepont, resulted in the very high average of £31 13s for 40 lots disposed of. 20 two shear rams fetched 721 guineas; 10 two shear sheep realised 286 guineas, and

the remaining older sheep brought 199 guineas. The highest priced obtained 90 guineas, and was taken to Ireland. *South Down Sheep*—At the annual letting of Mr. Jonas Webb's rams at Babraham, four dozen shearling rams, 42 shear-sheep two dozen three year old sheep, and a few older rams were offered. The prices reached did not equal those of some previous years, although the average, £25 9s 10d for 54 sheep publicly *let*, was £4 10s higher than that of 1858. Mr. Waters, of Eastbourne, Sussex, was the hirer of the highest price tup at 70 guineas, and Mr. Rigdon, of Brighton, of the next highest for 60 guineas.

FLAX CULTURE.

Having been frequently asked of late for instructions in the art of flax cultivation, we have pleasure in referring to an admirable article upon the subject, which is commenced in the present No., from the Irish "Country Gentleman and Agricultural Review," a copy of which we have been favored with by Mr. Hutton, Secretary of the Bureau of Agriculture. Although written for the climate of Ireland, the article, with a few obviously necessary variations, will answer equally well for this country.

THE WIREWORM.

RAVAGES OF THE WIREWORM.

(*Concluded from page* 49.)

The wireworm feeds on the roots, or root-stems, or young stalks below ground, of almost every herbaceous plant. There are few which it does not eat. It more especially attacks all those crops which are commonly cultivated, as oats, wheat, barley, grass, clover, turnips, potatoes, mangold-wurzel, cabbages, carrots, onions, lettuces, hops, beans, &c.; and in the garden it is particularly destructive to carnations and pinks, irises, lobelias, dahlias, &c. It devours any succulent root, but prefers fibrous-rooted plants, such as wheat, oats, carnations, &c. The only plants which we have heard of that it does not attack, are mustard and woad. It is also said to live in dung and vegetable earth; but there may be some mistake as to this, those who are not skilful confounding many different creatures which feed on, or are found at the roots of plants, with the true wireworm. It is probably to mistakes of this kind that we must ascribe contradictory statements which have been made on other points: for instance, we have above enumerated the potato among the plants which it feeds upon; but different observers are not at one as to this, some saying that the wireworm does not eat them, whilst others state that its ravages have been most destructive. To account for this, some have supposed it to be destructive in one district, and harmless in another. We are not disposed to admit that the habits or tastes of the wireworm differ in different counties; and as we know practically that the true wireworm does eat the potato (as slices of that tuber have been successfully used to collect them), it follows that where potatoes have escaped, that must have arisen from some other cause, such as the wireworms having other food that they preferred besides them, —or the grub having been a different insect. The slices have been found full of wireworm grub; while in the same garden the growing crop of potatoes did not suffer much. The turnip crop is attacked in the young state before the root has begun to swell, and the tap-root is eaten through about an inch below the ground. Of all crops, wheat, oats, and barley seem to suffer most and are most regularly attacked. The mischief which these creatures do appears from the following fact:—It has been found that on turning over with the spade a part of a field, which they infested, that there were six or eight worms in the space of every four feet; and it was there observed that one single worm had bitten from 8, 12, to 20 stalks, all in the same place. The place bitten is a vital one, being at the base of and into the heart of the stem. Fancy two grubs in every square foot going on at this rate. The wonder is, not at the havoc that is done, but that the whole field is not destroyed in a single night.

MEANS OF PREVENTION AND CURE.

No doubt the wireworm fulfils some important and useful part in the economy of nature, but we have not been able to find any aspect in which it can be said to be otherwise than injurious to the farmer; there is, therefore, no reason why it should be spared by him, or any other means of

prevention sought for than its utter extirpation. The question is thus limited to the best means of destroying it. We have seen that the insect passes through four stages, the egg, the grub, the pupa and the beetle. In each and all of these stages it is open to some means of destruction, and at all of them should be searched for with unremitting diligence.

It is obvious, that means of destruction which are practicable under one class of circumstances, may not be so under another —that what may be suitable for a small garden may not be applicable to a large farm; and in stating the various means of prevention which have been tried or found successful, the reader must judge for himself which are most suited to his own particular case.

The great encouragement to the wireworm grub and every other root-worm, is not cleaning the land properly. It has been found that the wireworm is always peculiarly abundant in land which has been recently broken up from old pasture. Undisturbed in the old pasture it is no doubt always a resident there, but we imagine is kept from increasing too much, by the consolidated state of the soil: when that is loosened, it more easily makes its way through it. It is for this reason that the grub, from its structure, always flourishes best in a loose sandy soil. When old pasture is broken up, this condition occurs; and the roots of the old grass are left upon the field to serve as food. No doubt the wireworm beetle also arrives from other quarters to take advantage of the suitable soil, and to lay its eggs in such a favourable locality. The plants which have been ploughed up, either partially grow again, or retain sufficient nourishment to keep the grubs in life until the new crop springs up, when the grub pounces upon the tender young shoots under ground. It is thus they attack newly broken up land in greater numbers, and with more destructive results, than they showed in the old pasture. But if the farmer, instead of leaving the turf and roots to rot on the land, had burned them, the result would have been very different. All insects whether in the state of egg, grub, or pupa, whether originally there from the old pasture, or deposited about the roots by strangers come to take advantake of the locality, would then be destroyed. This is the grand specific, and if *properly* attended to, no one need fear the wireworm.

This is no mere supposition or untried suggestion. Fields much infested have been pared and burnt, and were freed from the wireworm, while others in the neighbourhood, where the surface was pared, but not burned, continued as bad as before.—At the same time we must remember that paring will only do in the summer time—in the winter season the grub is too deep for this, and deep ploughing must be had recourse to before burning, the grub being often a foot deep in the soil.

We may be told that this grand specific has sometimes been tried, and proved no specific at all. In all such cases we believe that the failure has arisen from its not being *properly* applied at the proper times, and in the proper manner. The ploughing should not only be deep, but the burning should take place immediately after it. In the next place, it should be used either in autumn or spring, or still better in both.—If the roots and weeds on ploughed land are burned in the winter, or, as is usually done, in early spring, while the grub or pupa is still deep in the ground, where it has retired to pass the winter in a torpid state, it will not be injured by any such burning, unless indirectly from the roots and fibres which would have nourished it being destroyed, but this can scarcely be done so effectually as not to leave sufficient food to keep life in the grub till the young crop has begun to shoot. Whereas if the burning of the roots had been delayed till the grubs were eating them, they would both have been destroyed at the same time.—Besides, although the grubs may have been burned, the pupæ may not have been reached, as their cells are deeper in the ground; and the beetles may come out uninjured by anything that has been done. They lay their eggs, as we have seen, chiefly in May and June, therefore a burning at this season also may be essential. When this has to be done, it necessitates either a summer fallow, or at least a very late crop of turnips. It is better to submit to this than have the crop destroyed, not only for the present season but for several years to come. But it is very rarely that such a saerifice will be necessary. If the farmer is careful in cleaning his land, and burns the roots of the ploughed land early in autumn, and a second time late in spring, he will seldom be troubled by the wireworm. Care should also be taken to leave no strips of grass or stubble in the field. It will only be when he breaks up old pasture that he will have to take any extra precautions; but even here he need not have recourse to any but early ploughing, and burning the roots and turf in autumn as early as possible, and repeating the burning in spring as late as possible. If, indeed,

the young crop is cut off *by the wireworm*, then it is better to let the crop go, and turn the rotation into a summer fallow, burning the roots and weeds again in June or July. It is of no use to re-sow the crop, as is often done. With the wireworm this is useless—he is in the soil ready to renew the havoc the moment fresh food is provided him. Summer fallow and summer burning are then the remedies. If the field could be kept perfectly clean, a crop of white mustard or woad might dispense with the necessity of summer fallow, as we have seen that the grub does not feed on those plants, and if there were no weeds or other roots they would die of starvation; but fields perfectly clean and free from weeds are seldom to be found in this country.

Various other means of prevention have been tried, and although not so effectual as the above, have still been attended with greater or less success. Very heavy rolling has been found of advantage, for the reason which we have explained when speaking of the hardened soil in old pastures, and is applied as soon as it is seen that the young plants are suffering from the attacks of the wireworm. Folding of cattle on infected places has also been found beneficial, from the cattle padding down the soil into a hard crust. Lime and soot have also been applied with success. We are informed by a friend who is an excellent chemist and skilful agriculturist, that he has used spirits of tar for many years with great success. Before having recourse to it, for instance, he could never raise a crop of carrots. When they attained the size of, say a little finger, they were in general all cut off; since he has used it, he has never failed to have an excellent crop. The manner in which he uses it is, after the ground gets a sort of digging in autumn, a quantity of sand is taken and moistened freely with spirits of tar, which is sown on the surface of the ground, and dug or ploughed in. The quantity used is about twenty gallons for an acre. The price of spirits of tar is about one shilling per gallon, and if a quantity were purchased, it could no doubt be got cheaper. Salt, chloride of lime, nitrate of soda, the refuse lime of gas-works, and other matters supposed to be disagreeable to the wireworm have been recommended, but we do not lay much stress upon them. Another curious recommendution is to sow pieces of rape-cake, of which it seems the grubs are very fond, and feed upon them so ravenously that they die of repletion. We confess we have not much faith in this singular prescription.

Hand-picking, though a tedious, has been found a very useful way of getting rid of insects, indeed there are many which have bid defiance to every other mode of diminishing their numbers. It has also been tried with the wireworm, and found to repay the expense. There are two ways of hand-picking them, one to follow the plough and pick them as they are turned up. Young children not fit for any harder labour, may be set to this work at small cost. The other plan is to set traps for them, such as slices of potatoes or turnips, burying them in the ground, and thus to collect a good many at one time. It was Sir Joseph Banks who first suggested the potato as a trap, on the occasion of the botanic garden at Hull being nearly eaten up by the wireworm in 1813. Although he was laughed at, at the time, by those who did not believe in the wireworm eating the potato, it has been found that Sir Joseph was right, and the potato trap is one of the best we know. Mr. McIntosh, in his *Book of the Garden*, says, that by means of it he succeeded in taking in a border of carnations, no less than 6360 at 3 takings. The number of slices set was 106, and the average number of wireworms per slice was 20. At one taking he captured 2120, and by persevering in that manner for about a fortnight, examining the traps every third day, he so completely cleared the boarder, that for four years after he never lost a plant. The way in which he applied the trap, was to place slices of potatoes on the point of a stick, and bury them about two or three inches under ground. Others prefer laying the slices of potatoes or turnips upon the surface of the ground, and in this way also considerable numbers are attracted. It is unnecessary to say that this plan is more suited for the gardener than the farmer.

It has been thought that irrigating the fields (when this can be done) would destroy the wireworm, but it has not been found to have much effect. The grubs can remain several days under water without being drowned, and in earth, covered with water, of course still longer, for it will be long before the irrigation can completely saturate the soil to the depth of a foot, to which distance, or deeper, the grub can easily retire. This, therefore, does not appear a plan likely to be attended with success.

The foregoing are the means which may be used against this scourge. But there are others provided by nature, which we should abstain from counteracting. Pheasants, partridges, lapwings, ducks, fowls, small

birds, &c., all are fond of wireworms, and the mole and especially the rook devour immense numbers. Let us, therefore, be cautious in interfering with the operations of these two useful allies. We believe it will be found that, instead of being looked upon as enemies, and destroyed as such, they should rather be cherished as friends.

LIEBIG ON THE DRAINAGE OF CITIES.

[The following letter of the celebrated chemist, addressed to Mr. Mechi, the well known, enterprising agriculturist, will be read with interest on this side of the Atlantic, by those who feel desirous of promoting the sanitary improvement of cities, and the increase of agricultural productions. We have in Canada a number of towns, sufficiently large, if their sewerage were properly collected and prepared, to manure annually many thousands of acres. The comparative insalubrity of American cities, and the gradual but certain deterioration of the cultivated soil by over-cropping and non-manuring must sooner or later command an earnest public attention to this important question.—Ed.]

Munich, Nov. 17th, 1859.

Dear Sir,—Your letter of the 7th of November to the *Times*, furnishes me an occasion to express to you my sincere thanks for the views to which you there give utterance, and which I have labored many years to impress. I am sorry not to be able to say that my efforts have been attended with any perceptible results, and I regard it as a fortunate event that a man of so eminently practical a character as yourself has now for the first time, in the interest of agriculture and the national welfare, taken up the question of the "sewerage of towns" with warmth, and in language adapted to produce conviction.

It is my ardent wish that you may succeed in awakening the English people to your own convictions; for in that case the ways and means for setting aside the difficulties which stand in the way of procuring manure from the "sewerage of towns" will certainly be found, and a future generation will look upon those men who have devoted their energies to the attainment of this end, as the greatest benefactors of their country.

The ground of my small success lies clearly in the fact, that the majority of farmers do not know the extent to which their own interests are concerned in this matter, and because the views and conceptions of most men in regard to the circuit of life and the laws of the preservation of our race, do not generally rise above those of C. Fourrier, the inventor of the phalanstery. He proposed, as you know, to supply the wants of the occupants of his phalanstery by means of eggs. He supposed it was only necessary to procure a couple of hundred thousand hens, each of which would lay thirty-six eggs a year, making as many million of eggs, which, sold in England, would produce an immense income. Fourier knew very well that hens lay eggs, but he seemed not to know that in order to lay an egg they must eat an amount of corn its equal in weight. And so most men do not know that the fields, in order permanently to yield their harvest, must either contain, or else receive from the hands of man, certain conditions which stand in the same relation to the products of the field as the hen's food does to the egg she lays. They think that dilligent tillage and good weather are sufficient to produce a harvest; they therefore regard this question as one in which they are wholly unconcerned, and look forward carelessly and with indifference to the future.

As physicians, who in the apparent signs of a young man's blooming health, discern the fatal worm which threatens to undermine his organic frame, so in this case should those discerning men who are capable of comprehending the range of the question, raise earlier the voice of warning.

It is true that the diligent tillage of the fields, sunshine and timely rain, are the outward conditions, perceptible to all men, of good harvests, but these are perfectly without effect upon the productiveness of the field, unless certain things not so easy of perception by the senses are present in the soil, and these are the elements which serve for nourishment—for the production of roots, leaves and seeds—and which are present in the soil always in very small quantity in proportion to the mass of the soil itself.

These elements are taken from the soil in the products of the field, in the corn, or in the flesh of the animals nourished by these products, and daily experience shows that even the most fruitful field ceases after a certain series of harvests to produce these crops.

A child can comprehend that, under these circumstances, a very productive field, in order to remain *very* productive, or even simply productive, must have the elements which had been withdrawn in the harvests perfectly restored; that the aggregate of the conditions must remain, in order to produce the aggregate results, and that a well, however deep it may be, which receives no supply of water, must in the end become empty, if its water is constantly pumped out. Our fields are like this well of water. For centuries these elements which are indispensable to the reproduction of the field crops, have been taken from the soil in those crops, and that too, without being restored. It has only recently been ascertained how small a supply of these elements the soil really has. A beginning has been made to restore to the fields the loss which they sustain through the annual harvests, by introducing from external sources manures containing the same elements. Only a very few of the better informed farmers perceive the necessity of this restoration, and those of them who have the means have zealously endeavored to increase the amount of these elements in their fields; but by far the greater part of them know nothing of such restoration—they think that they may continue to take from the field as long as there is anything left, and that it will be time enough to provide for this necessity when it knocks at their doors. They do not of course know how large their stock on hand is, nor are they aware that when the necessity shows itself, there will then be no means to meet it. They know not that what they have wasted is irretrievable.

The loss of these elements is brought about by the "sewerage system of towns." Of all the elements of the fields, which, in their products in the shape of corn and meat, are carried into the cities and there consumed, nothing, or as good as nothing, returns to the fields. It is clear that if these elements were collected without loss, and every year restored to the fields, they would then retain the power to furnish every year to the cities the same quantily of corn and meat; and it is equally clear that if the fields do not receive back these elements, agriculture must gradually cease. In regard to the utility of the avails of the "sewerage of towns" as manures, no agriculturist, and scarcely an intelligent man, has any doubt; but as to their necessity, opinions are very various.

Many are of the opinion that corn, meat and manures, are wares, which like other wares, can be purchased in the market; that with the demand the price may perhaps rise; but this will also stimulate the production, and that all turns upon having the means to purchase, and so long as England has coal and iron she can exchange the products of her industry for the corn, meat and manure which she has not. In this respect I think it would be wise not to be too confident of the future, for the time may perhaps, come, even in half a century, that not one of those countries upon whose excess England has hitherto drawn, will be able to supply her with corn, and that too, from the natural law, that what is true of the smallest piece of ground is true also of a great country—it ceases to produce corn if the conditions of the reproduction of the corn which has been carried off are not restored to it. Nor, furthermore, is it certain whether the corn-growing lands will always desire to exchange their corn for the products of English industry, since they may no longer need those products, or at least not in the ratio of England's need of corn. In the countries of Europe, and in the United States of North America, great efforts are made to become in this respect independent of England, as being in the end the only way of keeping up the corn prices in these countries, so as to repay the labor of the people.

In the United States the population increases at a still greater ratio than in other countries, while the corn production upon the land under cultivation has constantly fallen off.

History teaches that not one of all those countries which have produced corn for other lands have remained corn markets, and England has contributed her full share towards rendering unproductive the best lands of the United States, which have supplied her with corn, precisely as old Rome robbed Sardinia, Sicily and the rich lands of the African coast of their fertility.

Finally, it is impossible in civilized countries to raise the corn production beyond a certain limit, and this limit has become so narrow that our fields are no longer capable of a higher yield withont an increase of their effective elements by the introduction of manures from abroad. By means of the application of guano and bones, the farmer of most limited capacity learns the real meaning of such increase; he learns that the pure system of stall or home-made manures is a true and genuine robbing system. In consequence of his restoring in the guano and bones but a small portion of the very same elements of seeds and of fodder which had been with-

drawn from his fields by centuries of cultivation, their products are wonderfully increased. Experiments instituted with special reference to this end in six different parts of the Kingdom of Saxony, showed that each hundred weight of guano put upon a field produced 150 lbs of wheat, 400 lbs of potatoes, and 280 lbs of clover, more than was produced by the same-sized piece of ground without guano, and from this it may be calculated how enormously the corn and flesh production of Europe has been increased by the yearly importation of 100,000 tons, or 2,000,000 cwt. of guano.

The effect of guano and bones should have taught the real and only cause of the exhaustion of his fields; it should have brought him to perceive in what a condition of fertility he might have preserved his fields, if the elements of guano which he has transported in the shape of meat and products of his fields into the cities, were recovered and brought into a form which would admit of their being restored every year to his fields.

To an understanding of this, however, the farmer has not yet come; for, as his forefathers believed that the soil of their fields was inexhaustible, so the farmer of the present day believes that the introduction of manures from abroad will have no end. It is much simpler, he thinks, to buy guano and bones, than to collect their elements from the sewers of cities, and if a lack of the former should ever arise, it will then be time enough to think of a resort to the latter. But of all the farmer's erroneous opinions, this is the most dangerous and fatal.

If it is perceived that no conntry can perpetually supply another with corn, then must it be perceived that the importation of mannres from another country must cease still earlier, since their exportation diminishes the production of corn and meat in that country in so rapid proportions that this decrease in a very short time manifestly forbids the exportation of manures. If it is considered that a pound of bones contains in its phosphoric acid the necessary condition for the production of 60 lbs. of wheat; that if the English fields have become capable by the importation of 1,000 tons of bones, of producing 200,000 more of wheat in a series of years than they would have produced without this supply, then we can judge of the immense loss of fertility which the German fields have sustained by the exportation of the many hundred thousand tons of bones which have gone from Germany to England. It will be conceived that if this exportation had continued, Germany would have been brought to that point, that she could no longer have been able to supply the demand of her own population for corn. In many parts of Germany, from which formerly large quantities of bones were exported, it has already come to be the case, that these bones must, at a much higher price, be bought back again in the form of guano, in order to attain to the paying crops of former times.

The exportation of bones for so many years from Germany was possible only because the German farmers had less knowledge of the real nature of their business than the English, believing as they did that practice and science taught doctrines contradictory to each other, and were fundamentally different things, and that they must trust not in the laws of nature, but in recipes. Things have now changed for the better, although not to the extent to be desired, for the German farmers do not as yet generally understand the value of the element of bones for preserving the fertility of their fields, not to speak of the restoration of their *former* fertility; for if they all understood this, still no one could have any more bones; at all events no more than those which he brings to market in his grain and cattle.

The prices of bones have become so high in Germany as to forbid their exportation, and if the question should be put to English commerce, whence it furnishes the English farmer with this to him so indispensable manure, the answer would produce astonishment, for this commerce has so far robbed all the inhabited parts of the earth, that the manufacturer of super-phosphate can only set his hopes upon the phosphate lime of the mineral kingdom.

In relation to guano, I have been assured that in 20 or 25 years, if its use should increase in even the same proportion as hitherto, there will not remain in South America enough to freight a ship. We will, however, suppose its supply and that of bones to continue for fifty years, or even longer—then what will be the condition of England when the supply of guano and bones is exhausted?

This one of the easiest of all questions to answer. If the common "sewerage system" is retained, then the imported manures, guano, and bones, make their way into the sewers of the cities, which, like a bottomless pit, have for centuries swallowed up the guano elements of the English fields, and after a series of years the land will find itself precisely in the

condition it was in before the importation of guano and bones commenced; and after England shall have robbed the cultivated lands of Europe even to complete exhaustion, and taken from them the power to furnish her longer with corn and manure, then she will not be richer than before in the means of producing corn and wheat, but will, from that time forth, become even poorer in these means.

By the importation of guano and bones the population has, however, in consequence of the increased production of corn and meat, increased in a greater ratio than would have been possible without this importation of manures, and this population will make upon the rulers of the State their natural demand for food.

If men do not deem it desirable that the balance between population and the supply of food be restored by means of exterminating wars and revolutions, (in which the want of food has always played a certain part,) or by means of wasting plagues, pestilence, and famine, or by emigrations *en masse*, then should they reflect that the time has arrived for getting a clear view in regard to the causes of the existence of the increase of population. A very little reflection will lead to the conviction that the relations of populations are governed by a great and comprehensive natural law, according to which the return, duration, increase or diminution of a natural phenomenon depends upon the return, duration, increase, or diminution of its conditions. This law governs the return of the harvest upon our fields, the maintenance and increase of the population, and it is easy to see that a violation of this natural law must exert upon all these relations a pernicious influence, which can be set aside in no other way than by the removal of its causes. If, then, it is known that certain existing relations work deleteriously upon the fields, if it can be foreseen that their continuance must bring about the ruin of agriculture, if there is but a single one of all the means which have hitherto resisted this deleterious influence and made it less sensibly felt, which can be safely relied upon to secure a perpetual fertility to our fields, and it is certain that this means, by a simple change and improvement of the existing deleterious state of things, can be obtained, then it becomes us to think whether a nation should not summon up all her intellectual and material resources in order to preserve these fundamental conditions of her welfare.

It has been maintained that the recovering of the manure elements out of the sewers in the large cities is impracticable. I am not ignorant of the difficulties which stand in its way—they are indeed very great; but if the engineers would come to an understanding with the men of science in relation to the two purposes—the removal of the contents of the sewers, and the recovery of their valuable elements for agriculture—I do not doubt that a good result would follow. Intelligence, in union with Capital, represents a power in England which has rendered possible and practicable things of much greater apparent difficulty. I look forward with deep concern to the solution of the "sewerage question." For if this question is decided in Great Britain without regard to the wants of agriculture, we can scarcely hope for anything better upon the continent.

Permit me to add still a few words in relation to the leading article of the *Times* of the same date, in which the one side of this question is taken up with great clearness, while the author of the article seems to have views not quite correct in regard to its bearing as it presents itself to my mind. The mistake into which he has fallen arises from his confounding the condition of a State with that of its population.

In the natural sciences we know nothing of a State, of its might or its feebleness. We know only of lands, their geological formation, their climate and soil, and whether the soil contains the natural conditions for the subsistence of man and beast. In places where these conditions are abundantly present, and geological circumstances do not hinder their intercourse, men cannot be exterminated. The most wasting war cannot rob a land of the conditions which nature has given, nor can peace give them to a land which wants them.

If Mr. Layard is disposed to answer the question put to him in the article of the *Times*, he will doubtless say that the decay of the admirable system of irrigation rendered the permanent maintenance of a great population in Assyria and Mesopotamia impossible. Countries may be fruitful, and become capable of sustaining a large population, when certain resisting influences, which in their unimpeded working make the cultivation of the soil impossible, are overcome by human intelligence; or when a land has all the conditions of productiveness except one, and then receives the one which it lacked. If Holland were without her dikes, which must be kept up at great expense, she would produce neither corn nor meat; the land would be uninhabitable. In a similar manner the inhabitant of the African oasis protects his grain fields by dikes against the storms of the desert,

which cover his ground with a barren sand. I know that prophets of future evil have at all times been derided by their own generation, but if history and natural law can furnish any ground whatever for a just conclusion, then there is none which stands upon a firmer basis than this: That if the British people do not take the pains to secure the natural conditions of the permanent fertility of their land, if they allow these conditions as hitherto to be squandered, their fields will at no distant day cease to yield their returns of corn and meat. Every man may picture to himself the state of things which will then gradually arise; but it does not belong to the province of natural science to decide the question whether the might and strength and independence of the nation can be maintained when this state of things shall have arisen.

Believe me, dear Sir,
Very truly and respectfuly yours,
JUSTUS VON LIEBIG.

To J. J. Mechi, Esq., London.

THE EARLY ENGLISH AGRICULTURAL WRITERS.

(*Continued from page* 32.)

The lawgivers of the iron days of Cressy and Poitiers, had evidently an interest in other viands beyond mere beef and mutton, for in the act of 1363 (37 of Edward III., the statute of Westminster, made by the king, lords, and commons), we find that "for the great dearth that is in many places of the realme of poultrie, it is ordained that the price of a young capon shall not pass three pence, and of an old capon fourpence, of a pullet one penny, of a goose fourpence, and in places where the prises of such vittailes bee less, they shall holde without being enhanced by this ordinance. And that in the townes and markets of upland, they shall be soulde at a less prise according as may be agreed upon between the seller and the buyer." This wise law was not repealed until the year 1624.

More than two centuries after this absurd poultry statute, we find the parliament imitating this necessarily abortive attempt to run counter to market prices, by an act to regulate the price of butchers' meat.—In the year 1532, by the 24 Henry VIII., c. 3, an act which was not repealed till the year 1541, it was declared in "an act concerning flesh to be sold by weight," that all beef, mutton, veal, and pork, should be sold by "haberdepois" weight, and moreover that no person should thereafter take "for any pound weight of flesh of the carcasses of beefe or porke, above the price of an half-penny, and of mutton or veale above the price of one halfpenny and half farthing," and after endeavoring to enforce these prices by a penalty of 3s 4d, it gravely continued: "Provided alwaies that the heads, necks, inwards, purtenances, legs, nor feet, shall be counted no part of the carcasses aforesaid, but such to be sold for a lower price.

The parliament were not content with fixing the price of calves' meat; they even declared what a butcher should not kill; for instance, in 1529, we find in the old statute books (the 21st Henry VIII.,) "An Act against the Killing of Calves" for three years, because, as the framers of the Act gravely inform us, "of late yeeres now passed the breeders of such calves, of their covetous minds, have used to sel their calves young sucking to butchers, weining, rearing, and bringing up few or none, whereby the increase of old cattell is marvellously minished and decreased." A penalty of 6s 8d is then imposed upon any one who should kill a calf during the next three years.

As might be reasonably expected, the farmers evidently evaded this act very extensively. But the Legislature was not to be turned aside from their grave resolves; so in 1532, by the Act of the 24th Henry VIII., c. vii., after explaining in its preamble that the act of 1529 was intended to provide "that calves once wained should not be put to slaughter before they were of convenient yeeres and meete for beefe," but that since the last act divers bad persons had continued "to kill young beasts called wainlings, steers, bullocks, and heifares, of one or two years old, or little more," it goes to enact that no person shall, under a penalty of 6s 8d, cause any cattle to be killed under two years old.

Then, again, the same parliament had evidently discovered another mare's nest; they deemed the increase in the price of mutton to have arisen from the flocks of England having become too large; so, as usual with them, they were prompt in attempting the remedy of an Act of Parliament.

In 1533, therefore, the 25th Henry VIII. c. 13, is an Act entitled, "Concerning the number of sheep one should keep. After describing at some length the several enormities that do ensue by the greedy desire of having many sheep—some persons then

having 24,000 and 20,000 sheep—"by which a good sheep for victual that was accustomed to be sold for 2s. 4d; or 3s. at most is now sold for 6s., or 4., or 3s. 4d. at the least," it goes on to enact that no one shall have more than 2,000 sheep in future under a penalty of 3s. 4d. for every sheep above that number. And by sec. 14 of the same act, it is provided that no one shall hold more than two farms; under a penalty of 3s. 4d. per. week they shall hold any land contrary to the act.

And the legislature of those days were not content to regulate the number of sheep a farmer should keep, and the price he should obtain for his mutton, but they regulated the trade in his wool. It was not to be exported, or, when it was allowed to be sent out of the kingdom, it was carefully provided that it should be sent only to the staple at Calais. I have not found in the English statute-book any direction as to how he should *shear* his sheep; but the Scotch government early issued directions similar to that of the Irish parliament of 1634.

The public acts of those days inform us that even as late as the seventeenth century the flockmasters of Ireland and Scotland had a summary way of gathering the wool from the sheep, which their rulers were enlightened enough to restrain. Thus, by the act of the Irish parliament (11 and 12 Charles II., c. 15), entitled "An act against plowing by the tail and pulling the wool off living sheep, it is declared that "in many places of this kingdome there hath been a long time used a barbarous custome of ploughing, harrowing, drawing and working by horses by the tayle, whereby (besides the cruelty used to the beasts) the breed of horses is much impaired in this kingdome. And also divers have, and yet do use the like barbarous custome of pulling of the wool yearly from living sheep, instead of clipping or shearing them. These miserable practices were then declared to be illegal, and to be punishable with fine and imprisonment.

It is evident, however, that there had been a previous Irish ordinance on this subject, since such a reformation is referred to in a letter written to his Scotch council by King James, in 1617. Chambers' (Annals of Scotland, vol. i., p. 471) gives an extract from a curious entry in the Scotch Privy Council Record. The document states that "In some remote and uncivil places of this kingdom an old and barbarous custom was still kept up of *plucking the wool from sheep instead of clipping it.*" The king hearing of the practice, wrote a letter to his Council, denouncing it as one not to be suffered; telling them that it had already been reformed in Ireland, under a penalty of a groat on every sheep so used, and was "far less to be endured in you." The Council immediately (March 17, 1617) made an order to the same effect; and after stating that many sheep died in consequence of this cruel treatment, concluded with a threat of severe fines on such as should hereafter continue the practice. "It is remarkable," adds Mr. Chambers, "that in the Faroe Islands there is to this day no other way of taking the wool from sheep than that which was then only kept up in remote parts of Scotland."

It was as early as the year 1337 that we find the exportation of English wool prohibited. The same measure of injustice to the farmer was conferred in 1521. And in 1696 the *wisdom* of Parliament was evinced by the prohibition of the export of wool from England, or even from Ireland into England. It was not till the year 1824 that the Acts of Parliament restraining the exportation of wool were repealed.

The Scotch parliament were by no means to be outdone by that of England; for so late as the year 1581, in the seventh parliament of James VII. of Scotland, it was enacted "That no manner of wool be transported, or put in schippes or boates to be transported, furth of this realm in time cumming." A law had been previously made, in 1467, that no cattle or sheepe should be sold out of the realm of Scotland; and again in 1535, by the fourth parliament of James V. of Scotland, it was directed, with all becoming gravity, "That na manner of men in time cumming sell nolt, sheepe, or other cattle, auld nor young, to ony English-men be himselfe or ony other mediate person, nor have nor send the samin in England to be sauld."

It sounds strange in our ears to read in these Scotch acts the title of "James, by the grace of God, King of Scotland, England, France, and Ireland."

We have seen how, previously to 1634. the Irish were wont to fasten their horses to the plough by their tails; and there is some reason to conclude, from a print in a Saxon manuscript now in the Harleian collection, that our Saxon ancestors did the same. I find no act in the English or Scotch statute-books relating to so barbarous a custom; not but that the Caledonian senate legislated upon the horse; they regulated his shoeing, and restrained his owner from over-feeding him. For in 1477, by the tenth parliament of James III., it was enacted, "because ignorant smithes

through ignorance or drunkennesse spillis and enrickis mennes horse," that a smith shoeing a horse in the quick should pay the cost of the horse till he be whole, and furnish the owner with another; and if the horse will not mend, that the smith hold the horse. And 1581, by the seventh parliament of James VI. of Scotland, "that none under a barron or landed man worth a thousand merks of yearly free rent keep horse at the hard meat after the 15th of May, or take them in before the 15th of October, on pain of forfeiting the horse." And the reason assigned is "that amangis the monie uther occasions of deurth of victuallers, there is ane speciallie very unprofitable to the commonweill, quhilk is the holding of horses at hard meat all the summer season, used commonlie be personnes of mean estate, cowppers of intention to make merchandise of the said horsis, being for the maist part small nagges, and na horses of service."

The parliament who, in 1533, regulated the number of sheep a farmer should keep, had more enlightened views in regard to the encouragement of the linen manufacturers. They erred strangely, however, when they tried to enforce the cultivation of flax on all soils. It was in 1532 that, by the 24th of Henry VIII. (repealed in 1592 by the 35th Eliz., c. 7), it was enacted, after a well-drawn preamble, setting forth the advantages of encouraging the home manufacture of linen, that every person having arable or pasture land "apt for tillage" should every year for every sixty acres in their possession sow "one rode or one quarter of an acre with lineseed, otherwise called flax-seed or hempseed."

Here, again, the Scotch parliament had long preceded that of England in regulating the husbandman's crops. In 1426, by the fifth parliament of James I. of Scotland, it was enacted that "ilk man tailand with a plauch of aucht oxen sall saw at the least ilk zeir a firlot of quheate, half a firlot of pease, and forty beans, under the paine of ten shillings to the baronne of the lande that he dwellis in."

ON WINTERING STOCK.

Read before the Hope Farmers' Club, by Mr. John Wade, Jr.

Mr. President and Gentleman.—The severity of the Canadian climate at this season of the year, renders the wintering of stock a very important part of the occupation of the farmer. And especially does it demand particular attention now that the wheat crop is so beset with enemies, as in many cases to materially reduce the yield, which makes it very desirable that the profits of live stock should be increased to the utmost extent. In view of this state of things, it will be well for every farmer to give the subject the amount of attention which it deserves, and make all necessary preparations for the coming winter. Stock should receive such treatment during winter, that they may be turned out in the spring in as good condition as when first taken into the yard in the fall; for I believe there is one point on which good farmers will all agree, viz: that cattle of whatever description should be kept constantly improving until they arrive at full maturity; and to accomplish this end, they must be well sheltered and receive food enough of the proper kind during winter to keep up the animal heat and support the waste of the system.

With regard to the manner of sheltering stock, great diversity of opinion exists. Some farmers assert that the stabling is much to be preferred to any other way, while others affirm with great confidence that the barn yard is preferable to the stable. The chief argument advanced by the former is economy of fodder, as by keeping the animal in a moderately warm stable much less food is required to keep up the animal heat; consequently they are not so liable to lose flesh. While the latter entertain the opinion that stabling is so much more expensive and laborious as to entirely counterbalance any advantages derived from it.

Perhaps it would be well before proceeding further to explain more fully why feed is saved by protecting the animal from the cold. Physiologists inform us that the heat of the body, when in a state of rest, is the same on every part of the earth's surface, and at all seasons of the year, blood heat in domestic animals is about 100° Fahreneit in the hottest days in July and August; and it must be kept up to the same point in the coldest days in winter, even if the frost is so intense as to freeze the mercury. Now, according to one of nature's laws, when a hot substance comes in contact with a cold one, the heat will immediately begin to leave one and be absorbed by the other, until they are of equal temperature. Thus when an animal is surrounded by a very cold atmosphere, the animal heat will be given off at a very rapid rate, and without a fresh supply, the temperature of the animal will soon be reduced to that of the atmosphere,

and death would be the result. We see, then, the importance of keeping up the animal heat by food containing the proper elements for combustion. Now, let us enquire how this can be done? After food has been taken into the stomach it undergoes a number of changes, which it is not necessary to mention here, and a portion of it is converted into blood; this in the course of circulation enters the lungs, when the carbon and hydrogen of the blood, which are both derived from the food, come in contact with the oxygen of the air which is brought into the lungs by breathing. A union takes place, and heat is given out just in the same way that heat is given out by burning wood in a stove, combustion is the same in both cases, only that in the latter case it is much more rapid than in the former.

Now it must be apparent to all, that as animal heat if thrown off much more rapidly in cold than warm weather, and as animal heat is produced by food, it must require much more food when stock is left exposed to the piercing winds and severe frosts of this climate, than when provided with good, warm and comfortable, stables, or shelters. The effects would be precisely the same as removing them to a warmer climate, and with much less cost. Indeed we cannot mount them on railways to transport them to a warm country, or give them wings to emigrate, but we can furnish them comfortable houses and a genial atmosphere, and thus prevent the rapid expenditure of their bodily heat, and save our fodder.

I may seem to have dwelt upon this part of the subject longer than was necessary; but I consider it of vast importance that the necessity of providing good shelter for domestic animals should be thoroughly impressed upon the minds of farmers, in order that the practice of consuming so much valuable fodder, merely for the purpose of keeping up animal heat may be to some extent discontinued.

In order to raise a stock of large healthy cattle they must receive extra care and attention until they arrive at the age of one year. The frame at this period is but partially developed, and the size and value of the animals when full grown will depend much upon the treatment they received during their first winters. The food given should contain, in abundance, all the different elements required for the growth of bones, muscles, cartilage, &c., and might consist of turnips, or carrots, either of which should be cut into small pieces, as much good hay as they will consume, and oats, rye, or peas made wet and mixed with cut straw. If they are kept in a comfortable stable or shed, and a sufficient quantity of the above mentioned varieties of food and a good supply of water be given them daily during their first winter, the growth of the animals will be such as to amply remunerate their owner for his extra expense and attention. For it should always be borne in mind that young cattle will increase more in weight from a given quantitity of food than old ones, and lay on fat more rapidly after they arrive at maturity by being well fed while young.

When winter feeding of beef is practiced, strict attention is absolutely necessary. Cattle in such cases being generally full grown, unless they are kept fattening a great loss of feed must be incurred, and as comfort and quietude will conduce much to rapid feeding, it is very important that they be tied up in a warm stable or fed in a dry, well littered shed. A regular system of feeding ought to be adopted; and a kind of feed given most calculated for the formation of tissue, and the secretion of fat. As cattle usually have a keen appetite in the morning, it is advisable that the coarse portions of the fodder be given first, and the most nutritious part left until the appetite is somewhat abated. But in all cases, regular feeding hours should be appointed, and strictly adhered to. Cattle so managed, after receiving a feed will generally lie down, and remain quiet until the approach of the next feeding hour; by pursuing this course the stomach will be kept in a healthy state, and digestion will be regular and perfect. The chief articles used for fattening cattle in the United States are Indian meal and hay, but in many parts of Canada turnips are more plentiful than corn, and when judiciously given make an excellent article of diet for cattle.—Great care should be taken however, to have them kept perfectly free from frost, and given in moderate quantities, especially in cold weather. Peas or rye meal, and oil cake when it can be produced, will be found to increase the weight of cattle very rapidly. But in order that the quantity given at a time be sufficient in bulk to satisfy the appetite, and as meal enough to have this effect would have a tendency to clog the stomach, it is found beneficial to mix it with cut straw. It will then be more easily acted upon by the digestive organs, and a saving of feed will be effected, for it is very evident that only a certain quantity can be taken up at once, and if more than is necessary be given, waste of food must be the result.

Although stabling, when sufficient attention is paid to ventilation and cleanliness, is undoubtedly the most economical mode of wintering stock, still the majority of Canadian farmers, from deficiency of barn room, and either inability or want of inclination to erect more, winter their cattle in yards. In such cases it is necessary to erect sheds and divide the yards so as to meet the wants of the different lots of horses, cattle, and sheep. The whole farm stock should never be allowed to go in one lot. Sheep should invariably have a yard and shed to themselves, and cattle would have a much better chance to thrive well if kept in two or more lots, according to the size of the herd; unless this plan is adopted the old cattle will be very likely to abuse the young ones, as well as deprive them of the best portion of the feed. All young horses should, if possible, be separated from the cattle, and the refuse from the fat cattle, if any are kept, fed to them daily; for it is very noticeable that any portion of feed refused by cattle, will frequently be eaten by horses with avidity, and vice versa. The yards should be so arranged that the feed will be easily accessible, and racks provided for the cattle to eat out of. When straw has to be carried any distance, a single horse sleigh with a suitable rack is very serviceable in distributing the fodder, it may either be left in the yard for the purpose of a feed rack, or merely used to convey the hay or straw to the place required.

A sufficient supply of water might in many cases be obtained by putting eave troughs to all the barns and sheds and collecting the rain water in suitable tanks. They can be made in any part of the yard, at a moderate cost, when the ground is dry in summer. They should be made sufficiently capacious, lined and arched over with birch, and in place of a pump, one of Winegar's water elevators, which will not freeze, inserted in each. Where there are no springs or wells near the barn, this would be a great saving of labor, and a great comfort to the stock. Although moderate exercise will conduce much to the health of stock, still for animals that are not confined in the stable, taking their supply of water in the barn-yard will be found much better than walking some distance twice a day over a rough or icy road. A great saving of manure would also be effected, which in many cases would amount to almost enough to defray the cost of building the cisterns. For unless cattle are driven to and from the water, they frequently tarry around the place for some time; and the quantity of manure wasted by a large herd of cattle while they are absent from the yard, would in the course of winter be considerable.

I will omit saying anything respecting the management of horses, sheep, and pigs, as I do not consider it necessary. Good shelter and plenty of feed, being all that is required to bring them out in good condition in the spring. I will therefore leave the subject in the hands of those better qualified to deal with it.

JOHN WADE, Jr.

Hope, December 26, 1859.

ON THE CULTIVATION OF FLAX.

BY JOHN WALSHE.

From the Irish Agricultural Review.

Flax belongs to the fifth class of the Linnian system *Pentandria Pentagynia*, and to the natural order *Griunales*, and genus *Linum*.

There is but one species for us to consider —viz., *Linum Usitatissimum*. It is indigenous to several countries in the east, and is supposed to have taken its origin from the alluvial soils of Egypt, formed by the inundation of the Nile. From the most remote period its fibre has been manufactured into various fabrics of different textures.

The plant will grow on a great variety of soils, sandy loams, light medium, and heavy clays, alluvial deposits, marly, peaty, or chalk soils; all these will produce it well under favorable circumstances. But a due admixture of sand and clay is the best adapted, having a red or yellow clay subsoil.

By paying due attention to the following hints, good flax may be grown on any of the above-mentioned soils; but like all other crops some are better suited to its growth than others. The best may be stated to be a sound dry, deep loam, with a clay subsoil.

Land intended for flax should be deep, and easily pulverized. The land, therefore, should be thorough drained, if not naturally dry, so as to admit the fibres of the flax-root to descend in search of nourishment.

The flax penetrates the soil rrom one and a-half to two and a-half feet in a right line downwards, *i. e.*, if the rootlets meet no obstacles. The flax occupies different places in various rotations; much of course depends on the nature of the soil. It is not generally considered advisable to grow flax in the same portion of ground at shorter intervals than eight or nine years. I shall give an instance of a rotation in which it can be grown successfully, provided everything else is favorable. It being an eight course shift an interval of eight years will elapse from the time flax is grown in any particular field of the rotation till it is repeated again.

First, potatoes; second, wheat; third, flax; fourth, turnips; fifth, barley, &c., with seeds; sixth, grass, 1st year; seventh, grass, 2nd year; eighth, oats.

Flax is here grown immediately after wheat, it being found by experience to be of a fine fibre after it. If this course is followed out it becomes necessary to add some special manure, or give a watering of liquid manure if such be available.

The following compound has been proposed by Professor Hodges as a manure which may be distributed broadcast on the soil prior to the final harrowing before sowing the seed:—

"For a Statute Acre of Land."

"Muriate of Potash	30 lbs, cost about	2s.	0d.
"Chloride of Sodium (common salt,)	28lb	0s.	3d.
"Burned Gypsum, powdered	24lb	0s.	6d.
"Bone Dust,	54lb	3s.	0d.
"Sulphate of Magnesia (Epsom salts)	56lb	4s.	0d.
		11s.	3d.'

It has been found by chemical analysis that the flax crop abstracts from the soil certain ingredients which must be restored by the application of special manures containing these abstracted ingredients in a preponderance.

If flax be grown after a potato crop, as is very often the case, or in fact any other green crop, it is found to be of a coarse fibre. This is the only rotation in which we depart from the general law never to grow two grain or exhausting crops in succession. We can grow flax after oats in any of the other rotations, but it might come in the same field too often. It may be here remarked that we have been growing flax at too short intervals of late on the same ground, and therefore the yield falls far short of what it would if due attention were paid to the few important points going to be detailed briefly in the essay.—Being sown in April it is invariably ready for pulling by the middle or end of July.—At this time a crop of some other sort may be taken after the flax is removed. I may remark here that it is the general opinion of many practical farmers that flax does best after potatoes, but this is an error.—Except on light inferior soils a far superior crop will be produced after grain.

If grown after a grain crop, as it should invariably be, after the removal of the latter the soil should receive a ploughing, followed by a harrowing to clear off weeds of all kinds. The furrow should be thoroughly cleaned with the plough in order to give a free passage to the rain water, &c., during the winter. After wheat one ploughing will suffice on light friable loams, but two is more efficient, and on stubborn soils three may be found necessary. The second ploughing should be given in December, and thus the soil shall be exposed to the ameliorating influence of the winter's frost. As no crop requires a more thorough and minute pulverization of the soil than flax, it is indispensably necessary to have it exposed to the winter frost, by which it is crumbled down finely. In spring this fine winter surface must be harrowed and well rolled to consolidate it. Let it be remembered that we are taking it for granted that the soil is thoroughly drained before-hand, which is one of the points of the greatest importance in the growth of flax. Admitting that the soil is well drained it should be subsoiled also, so that we can sow the seed on the flat, which will give more even and average crops. In spring it is better to grub lightly than plough in order to avoid as much as possible the turning down of the fine surface mould, which is so necessary for the tender flax-seeds.

This cultivation may do for the majority of flax-soils, but very heavy clay will require an additional ploughing some weeks before grubbing. Light soils in the meantime will do with one ploughing in September and a grubbing before sowing, giving at the same time a good harrowing, and collecting weeds of all kinds.

In selecting flax seed great care is necessary on the part of the purchaser. The seed should be pretty plump, heavy and shining, as also bought from a respectable seedsman, which latter precaution should be carefully observed in the purchase of all kinds of seeds.

The best variety of seeds adapted for most of our soils is the Riga, which, when imported to us, is generally the growth of the previous year. The American seed has not been approved of on account of its producing a coarse branchy stem. With us in Ireland, Riga seed is now most universally used, but Dutch is considered by some superior for heavy soils. This Dutch is also imported from Riga, but is the production of the second year back. Riga gives a heavier crop but Dutch produces a finer fibre, from the greater care with which it is prepared. It is much cheaper than the Riga, which frequently contains a large per centage of the seeds of injurious weeds. Much of course depends upon circumstances; but for my part (and I have had experience of both) I prefer the *Riga*, and if seed-weeds are suspected being in it we should run it through the fanners, putting in a very small sieve.

Home-saved seed has produced excellent crops to my own knowledge; it should therefore, be strongly urged upon the grow-

ers of this plant to save from their foreign sown seeds each year as much as would produce a sufficient quantity for the following year's crop. The produce of seed may be stated at about 20 bushels per Irish acre. The thinner portion of the field ought to be selected for saving the seed off. Riga seed varies in price from 8s. to 16s. per bushel, and Dutch from 7s. to 13s. 6d., this of course fluctuates with the demand and supply. The quantity of seed sown per Irish acre may be stated at 3½ bushels, and so in proportion to the statute. It is better sown rather thick than too thin, for in thick sowing the stems grow long and straight, and bear only a few bolls at the top. It is also superior in fineness to thin sown flax, which gives up a coarse and strong stem, producing much seed and inferior fibre. Well, to proceed with the cultivation. The ground having been well pulverized, roll and sow; if it has not been already marked out in ridges or broad lands, say ten or twelve feet wide, it should now be done, in order that the sower may distribute the seed more evenly. Flax should in this climate be sown if possible in the early part of April, and in fact sooner if the weather be mild. Many persons delay sowing until May, but they need not expect a crop equal to that sown in April.

For fine fibre early sowing is necessary. Vegetation is more rapid in the latter part of the season, nothing like steady growth for quality. After sowing it should be covered with the grass-seed harrow slopewise across the field. The sowing is finished with the roller, which leaves the seed covered about an inch, the proper depth. The ridges should not be too high in the centre, as in such a case the crop will not ripen evenly. I should mention also that there is another advantage resulting from early sowing, viz., that in case of the crop falling from bad seed or any other cause the farmer can plough it up and substitute for it some other crop.

In many places they manure the flax crop. If desirable, we may apply some farm-yard manure with the autumn ploughing, or use the manure advocated by Dr. Hodges, noticed in the early part of this article.

We seldom or ever use any manure here in Ireland, thinking the ground rich enough where it is generally sown, and we fear rankness of growth, and if heavy rains come on it would logge, and consequently materially injure the fibre by discoloration.

When the young flax plants are two or three inches high they should be carefully weeded, which should be performed twice. and before the plants get too long. The operation of weeding should be performed with scrupulous exactness, so as not to in any way injure the young plants. Women or boys, after folding up their loose garments tightly about their knees, wearing shoes without nails, (in fact better have no shoes on at all), the weeders should go on all fours in a creeping posture, facing the wind always, by which the plants are soon raised upright again. But if due attention be paid to the cleaning of the seeds and the soil few weeds will appear.

Flax flowers about the end of June, at which time the plant with its delicate blue flowers present a most magnificent appearance. When the blossom falls off the bolls begin to form, and when fully grown, which will occur about the middle of July, they are nearly round. The bolls partly enable us to ascertain the state of its maturity. When it is found to be of a fine firm dark green it is considered fit for pulling. In fact this is a point which requires much judgment and experience, for if pulled too soon there is a loss in the manufacture of it, such as scutching, hacking, &c., and if pulled too late it is generally too coarse. It may be stated in a few words that flax is ripe when the seed is changed from a green to a pale brown color, and the stalk yellow two-thirds of its height from the ground. Long experience has shown that early pulling is the most profitable (not too early of course,) for although the seeds have not become fully matured, yet if dried slowly they will absorb from their integument a sufficiency of sap to render them of a certain degree of ripeness. When pulling, if it be of uneven length it should be pulled separately, *i. e.*, the long with the long and the short with the short. This can be effected by holding the flax under the bolls immediately; this allows the shorter portion to escape, and this can be taken up a second pulling. These two separate lengths should be kept by themselves in all the subsequent operations, as a great waste is entailed when both are treated together.

To be concluded in next number.

Agricultural Intelligence.

THE PROFITS OF RED RIVER FARMING.

A few days ago we received a call from one of our largest and most successful farmers—Mr. Gowler, whose cheese and tobacco enjoy the reputation of their having been critically tested and reported upon to the Canadian Government—and from him we learned how easy it is in any favored country for the steady and industrious settler, no matter how poor in pocket, to climb the ladder of independence.

Mr. Gowler's commencement was about as unpromising as the lot of the poor immigrant well could be. And the success which has attended his efforts is, therefore, the more conspicuous. His knowledge of the country dates from 1837, when he was brought here to perform the part of a laborer in that most expensive of all the Hudson's Bay Company's agricultural experiments—the experimental farm—one of "the unfortunate sisters," whose precious memory will live embalmed in the ponderous ledgers at Hudson's Bay House. The scheme, as everybody knows, failed—to the great loss of the Company and the great gain of Mr. Gowler. For, released from obligations to the Company, Mr. Gowler commenced farming on his own account; and being no longer bound down by the unmeaning restrictions of a body of proprietors living 4,000 miles from the scene of operations, he at once began a successful career which gives promise of his beating his old masters on what they have been wont to regard as their own ground.

In June, 1852, Mr. Gowler entered upon 200 acres of prairie, on the north bank of the Assiniboine, about eleven miles above the fort, paying the sum of sixteen pounds. In the course of the summer he erected thereon a small dwelling-house with the necessary out-buildings, and ploughed a portion of the land. During the following spring he sowed 12 bushels of wheat, 10 of barley, and fifteen of potatoes. Harvest time brought good returns, particularly from the potatoes, to the growth of which the soil—a rich black vegetable mould—is well adapted. Of this no better proof could be given than that afforded by Mr. Gowler's farming experience in the fourth year, when the almost incredible number of 2,000 bushels of potatoes appeared as the product of 56 bushels of seed. Next year his farm, as well as those of his neighbors, was visited by a plague of grasshoppers, which spread themselves over the ground, and consumed and destroyed the fruit of the husbandman's toil, on every hand. The crops which are garnered that season were therefore but poor and scanty, as were also those of the following, for within a week of harvest time, the farmer's riches—the golden grain—took to themselves wings and flew away in the shape of swarms of young grasshoppers, which had risen from the eggs deposited in the ground during the visitation of 1857. At seed-time of the present year all traces of the pestilence had disappeared and, Mr. Gowler having before his eyes the sure prospect of a good market, brought under cultivation a greater breadth of land than any year previously. He sowed 63 bushels of wheat, 36 of barley, 24 of oats and 101 of potatoes, and from those he realized 700 bushels of wheat, 350 of barley, 480 of oats, and 2,100 of potatoes. The cost of the seed was £50; in preparing and tilling the soil about £25 more was expended; and the cost of gathering in and thrashing the crops is set down at £100—making a total expenditure of £175.—Place against that the sums representing the sale of the wheat at 6s., the barley at 3s. 9d., the oats at 2s. 6d., the potatoes at 1s. 3d. per bushel, (average prices, which the produce will easily command), and an argument more strong and convincing than could be wrought out by any other process of reasoning, stands stubbornly forth in favor of the claims of the settlement as being one of the best agricultural countries on the face of the globe. It should be added that Mr. Gowler's profits have already enabled him to enlarge the bounds of his estate to 600 acres; to stock it with a noble herd of cattle and horses; and to make the necessary preparations for erecting thereon, next summer, as snug and comfortable a mansion as imagination of gentleman-farmer could conceive or his heart desire.—*Fort Garry Norwester.*

Action of Frost Upon Soils.—The *soluble* part of the soil is the inorganic food of the plant. Rain water cannot come in contact with the soil, or even with a gravel heap, without dissolving some of it. Expose almost any stone, or handful of gravel, washed clean, to the action of a quart or so of rain water for several days, and upon evaporating the water, poured off carefully from the stones, it will be seen from the whitish residue left that a portion had been dissolved. Now let these same stones be exposed, covered or partly covered with water, in a saucer, to the action of frost, setting them out of doors for two or three snapping cold nights, taking care that they thaw by day. Pour off the water, rinsing with fresh, and evaporate as above, and it will be seen that a very much larger quantity has come into solution. The reason is, that all stones, being somewhat porous, by the action of the frost their outer portion is broken up, scaled and fissured, and a vastly greater surface is exposed to the action of the water, even though this fissuring is not visible to the eye.

Application.—When land is exposed to alternate freezing and thawing, the same effects must take place; and when it is

thrown into ridges in the fall, these effects are produced more conveniently than in any other way.

Snow will lie unthawed between the ridges, ensuring a cold temperature, and the tops of the ridges will, unless the fall of snow is very heavy, be exposed to the sun, and will thaw by day. Thus a considerable portion of the soil during a great part of the winter, will be alternately frozen and thawed daily, This effect on many soils, especially those of a heavy clayey or gravelly nature, will be equal to a dressing of manure.—*Homestead.*

Herd Books.—We learn from the Mark Lane Express, that the 3d volume of the Devon Herd Book, by John Tanner Davy, and the 4th volume of the Hereford Book, by Thomas Buckham, and the 13th vol. of Coates' Short Horn Herd Book, by H. Strafford are issued.

Hiram Olmstead, Walton, Delaware Co., N. Y., raised last year 809 bu. of Ruta Baga on 82 rods of ground, and 227 bushels of Carrots on 42 rods of ground. The largest Ruta Baga weighed, after it was removed, 17¾ lbs.

Mr. Olmstead, from 12 cows and 3 heifers, made over 3,200 lbs. of butter, giving an average, after making allowance for heifers, of between 220 and 230 pounds per cow, for 1859.—*Journal N. Y. State Society.*

Alderman Mechi, of Tiptree Hall, says, "My crops for several years have averaged per acre,—wheat 40 bushels, barley, 56, oats 88; and mangold wurzels from 25 to 40 tons, the latter being a more certain crop in the dry climate of Essex, than Swedes."

Guelph Cattle Fair.—The February Cattle Fair was held on Wednesday last, and was eminently successful. There were some of the finest cattle on the ground we have ever seen in Canada, and they were all readily sold at good prices. No less than *eight cars completely filled with fat cattle* were despatched by the Great Western Railway yesterday morning. A considerable number were also forwarded by the Grand Trunk. As a sample of the prices obtained we may mention the following: Mr. William Hood sold two steers for $150; Mr. Swanston of Eramosa, sold two steers for $120; John Peters, Eramosa, sold two heifers for $130. Our monthly cattle market is now a great and abiding institution—a mutual benefit to all parties. —*Waterloo Chronicle.*

Abundance of Weeds.—An English botanist discovered, by careful examination, 7,600 weed seeds in a pint of clover seed, 12,600 in a pint of grass seed, 39,440 in a pint of broad clover, and 25,500 in a pint of Dutch clover seed. In a single plant of black mustard he counted over 8000 seeds, and in a specimen of charlock 4,000; the seed of a single plant of common dock produced 4700 little docks.—The white daisy has over 400 seeds in each flower, and sometimes 50 flowers from one root.

New Cattle.—Mr. Andrew Kyle, of North Dumfries, intends importing eight heifers and two bulls of the Galloway breed, in the early part of April next.—This breed of cattle is considered well adapted to the Canadian climate.—*Waterloo Chronicle.*

Township of York Agricultural Society.—We were invited the other day by the President of this Society, Philip Armstrong Esq., to a dinner at Bet's, in this city, at which were the Directors of the Society, and a few invited guests. The evening was spent in the most agreeable manner, in the interchange of sentiments and information, chiefly pertaining to agricultural subjects, and the state and prospects of the Society, which has had new life infused into its proceedings during the past year; and from the spirit evinced by the several office-bearers, including the indefatigable President, there is good reason to expect a continuance of prosperity. The York Township Society is a proof of what energy and unanimity will do in restoring to active life and usefulness a society that was almost dead, and we wish the Directors continued success. Several present expressed a willingness to communicate to the *Agriculturist* any thing of interest that might come within the range of their experience or observation, and we trust that the office-bearers and members of other societies in different sections of the Province will follow the example. Without such co-operation, this journal cannot fully represent the state and prospects of the agriculture of the country. We shall be glad also to hear from horticulturists, manufacturers and mechanics, upon any subjects relating to the industrial arts of the Province.

In the Pike's Peak regions, such delicacies as chickens bring $4 a pair, eggs $2 per dozen, and sweet potatoes 45 cents a pound.

Horticultural.

PROGRESS OF HORTICULTURE IN AND ABOUT TORONTO, DURING THE LAST QUARTER OF A CENTURY.

The suitability of the soil and climate of Canada to Agricultural pursuits is now well known and acknowledged, both within and without the Province; and it is this great interest that constitutes the foundation of our prosperity and wealth. The clearing and cultivation of land is the first step in the progress of all new countries capable of sustaining any considerable amount of population in comfort and independence; and as agriculture advances and wealth increases, its twin sister, horticulture, is called into being, ministering to man's taste, refinement and luxuries. This advanced stage of social progress and civilization, of which the beautiful art of gardening may be considered one of the principal exponents, now admits of ample illustration in the rapidly advancing state of horticultural pursuits in the vicinity of most of our principal towns and villages. We have been favored by a practical gardener of twenty-five years standing in this city, with some memoranda of the progress of his art in this vicinity during that period of time, which embraces nearly one half of the entire history of the settlement of Toronto.

In 1836, there were only two small green-houses in this city, and in them nothing further was attempted than the culture of very common plants. In 1860, we can point to many thousands of square feet of glass structures, most of them formed in accordance with the most approved modern principles, and supplied with all the most recent appliances, for the growth of grapes, and orchard fruit of the finer qualities; green-house and exotic plants, including many of the more recent imported varieties. A brief glance at some of our principal gardens will not be uninteresting to our more distant horticultural readers.

Judge Harrison's residence on Dundas Street, the site of which a few years since was a cedar swamp, is now a most delightful spot. The grounds are laid out with much taste by the Judge himself, who is his own architect, and who has spared no expense in getting together an extensive collection of all the choice hardy and half hardy plants and shrubs that will flourish in our climate. By the drainage and efficient preparation of the ground, the shrubbery has already the appearance of maturity, and the Judge may literally be said to have made "the wilderness to blossom as the rose." His surface of glass is quite extensive; embracing three green-houses and one hot-house, filled with the choicest and rarest plants, including a fine collection of *orchids*, in a flourishing condition. The houses are heated by hot water, on a system modified and improved by the Judge's experience, and which may now be said to be very efficient. There is likewise an extensive cold vinery, and an orchard house, stocked with choice sorts, and highly productive.

Next we may mention the very pleasant residence of the Hon. J. C. Morrison, on Yonge Street, which has been matured with much taste and expense within a very few years. There is a very extensive range of glass, comprising green and hot-houses, cold vinery and forcing pits, of the most recent and improved construction, after plans furnished by the late Mr. Mundie, of Hamilton. They are built in the most substantial manner, glazed with rough plate glass, and heated by Hitching's hot water apparatus. The hot water is conducted through near two thousand feet of pipes, four inches in diameter, which radiate sufficient heat in the coldest weather. Mr. Morrison's plants are not only extensive as a collection, but many of them are rare and exceedingly interesting, their appearance indicating skill and care in the gardener, and can hardly be surpassed in Western Canada.

The residence of C. S. Gzowski, Esq., Bathurst street, is a delightful villa, the grounds being laid out with great taste.—Attached to the house is a very beautiful conservatory, heated by hot water, and filled with a tastefully asssorted collection of rare and healthy looking plants. In addition to these are a large green house and cold vinery; the latter produced a good crop of splendid grapes last year. An extensive range of glass has just been completed to be used as a cold orchard house for the growth of the finer sorts of grapes, peaches, pears, cherries, currants, &c.

D. L. McPherson, Esq., has recently completed a large and commodious residence on Yonge street, with appropriate sbrubbery and pleasure grounds. His extensive range of hot and green houses, now in the course of erection, will, when completed, surpass any thing of the kind now in the Province.

Henry Eccles, Esq., Jarvis street, has a very good green house and vinery, heated by 800 feet of four-inch water pipe, and

glazed with rough plate glass, which may now be pronounced from sufficient experience to be well adapted to this climate.—Mr. Eccles has exhibited a number of very fine grown plants at the Toronto Horticultural Society's shows.

The Hon. H. H. Killaly, of Wellington Place, has just completed a fine range of buildings, green and hot houses, a cold vinery, and an orchard house, all constructed on the most approved modern principles.

W. H. Boulton, Esq., has an extensive range of houses for the growth of grapes, peaches, &c. The Hon. W. Cayley, has also a large cold vinery. Jas. Metcalf, Esq., on Yonge street, has just commenced the erection of a very fine conservatory. Prof. Hirschfelder, of Yorkville, has an excellent greenhouse well stocked with choice, healthy plants, and is a very successful competitor at the Horticultural and Provincial Shows. We have quite a number of amateurs who practise on a smaller and less extensive scale, who have contributed in no small degree to the advancement of gardening in all its branches, in this vicinity. J. C. Small, Esq., the indefatigable Secretary of the Toronto Horticultural Society, and J. D. Humphreys, Esq., may be instanced as belonging to this useful and important class.

Toronto is well supplied with public Horticultural establishments, some of which are quite extensive. Mr. Fleming, of the Yonge Street Flower Garden and Seed Store, has several green houses filled with a large assortment of plants; many of them of a rare and valuable kind, and also a capacious cold vinery recently erected. Mr. F. Richardson, of Carlton street, grows a varied and extensive assortment of hard and soft wooded plants. Mr. John Gray, of the Lake view Nursery, is noted for the production, among many other things, of a fine collection of choice roses; and Mr. George Leslie, proprietor of the extensive Toronto Nursery, raises large quantities of bedding and other plants.—Our market gardeners, as well as amateurs, have of late years shown a spirit of emulation, that has materially advanced the art of culture; so that our market is usually supplied in profusion with vegetables and open air fruits of the best description. In some kinds of fruit, however, we have of late years severely suffered in common with too many other sections in this Province and on this continent, from disease, and the depredations of insects, to counteract the ravages of which will require all the care and skill that the gardener and entomologist can exercise and possess.

No notice, however brief and general, of the state and progress of horticulture in the vicinity of Toronto, ought to conclude without referring to a gentleman who has done so much both by precept and example, to promote a taste for this useful and beautiful pursuit among his fellow citizens. The Hon. G. W. Allan, the proprietor and occupier of the fine old mansion and grounds of Moss Park, President of the Toronto Horticultural Society, and the generous supporter of every movement that tends to improve and elevate his native city and country, has recently given to the above society five acres of land situated almost in the heart of the city for the purpose of an illustrative garden, and for holding the Society's exhibitions. Five acres adjoining have been purchased by the corporation, and the whole, comprising ten acres, will form, when completed, an attractive place for public resort to all who have a love of green leaves, shrubs and flowers, amidst the hum and bustle of city life. These grounds have been laid out, and important improvements already made, by and under Mr. Edwin Taylor, an English landscape gardener of distinguished taste and large experience, now residing in this city. What with the University Park, the Exhibition Park, and these beautiful Horticultural Gardens, Toronto will possess, close at hand, lovely aud comparatively retired spots where its citizens can resort for health and recreation, and breathe the pure air of heaven amidst the charms and beauties of the floral Kingdom. Must not these agencies tend, and in no small degree, to promote the physical and social well-being of the great masses of the people?

In other cities and localities of the Province Horticulture has no doubt made a similar progress, thereby clearly indicating the advances which our people are making in social refinement and physical comfort; and we shall be happy to record in our pages such information bearing upon the subject, as we may be favored with.

Trees.—The Japanese have a custom, uniformly observed amongst them, by which every man leaves on his grounds as many trees as he finds. Hence, in Jeddo, the forest city, some groves covered several acres, and were in the most perfect state of nature; in other places were to be seen neat houses, finely shaded with gardens, and ornamental shrubbery, trimmed into fanciful forms of every description.

Cranberry Culture.—At an informal meeting of the State of Maine Board of Agriculture on 20th January last, the following remarks were elicited on the cultivation of the Cranberry. We copy from the *Maine Farmer*:—

Mr. Dill said he had cultivated a cranberry bog for five or six years with considerable success. His bog covered five or six acres. It was at first occupied with a resolute growth of laurel and hardhack, which he eradicated by chopping up the turf and carting it off. He used to bank up his barn cellar, and subsequently mixed it with the manure. This nearly paid for getting it from the bog. After removing the turf he carted on sand, to the amount of fifty full loads to the acre. After distributing the sand, he set his cranberries in rows about 18 inches apart. In about two years from setting out the growth runs together, which is desirable, for the fruit does not yield until the matting takes place. It is necessary to flow the bog after the plants are set, and keep the water on until the season of frost is over, to the end that the roots remain undisturbed.—Mr. D cultivated six varieties—the Bell, Cherry, Bugle, each of two kinds, large and small. He preferred the Bell, and next to that the Cherry. He obtained them all from West Bridgewater, Mass.—They may also be obtained in Wells and Leeds in this State. Mr. D. had found that the purest sand was the best for cranberries, as weeds trouble them in their infancy. When they get well matted, however, they will protect themselves from grasses and weeds. Sand, water, and air, they want, in abundance. The varieties he had named are better for preservation than our natives, which soon perish. Mr. D. made mention of a few native varieties. In the vicinity of Rangely Lake a vine cranberry was found in bogs growing 10 or 12 inches high, in bunches, like beans.—The fruit was fair sized, and in the form of a cherry, quite prolific, and very good. In the same vicinity were two species of high bush cranberries. One was well known, it had one large stone in the centre resembling the parsnip seed, except that it was thicker. It was tart and made a good jelly. The other kind was but little known and a much better fruit. The seed is about one-third as large as the other. The bushes were small, and the fruit grew like the currant, in bunches among the leaves.—There was one little patch of this in Dallas plantation, and it is found also on the Kennebago stream north of Rangely—a tributary of the Androscoggin. This latter kind ripens in August and September, while the former does not ripen till November.

Mr. True had watched the growth of the cranberry for some years. It was with regret that his neighbours were obliged to send to West Oxford for them, when there were so many unimproved places hard by, where they might be profitably raised.—Two experiments had interested him particularly. A neighbor of his had a cold swale on which nothing grew except the coarsest grasses. This he turned over with his plow and stuck in his cranberry bushes, and left them to contend alone with the grass. In two years they had crowded out all competitors, and gave a luxuriant crop of most excellent fruit. An experiment was conducted by a man in Kennebec, who, in a similar piece of ground, planted his cranberries without plowing, lifting the sod with his hoe, sticking in a vine and saying to grass and cranberry, "now go it?" The cranberries soon obtained the mastery, and were now amply rewarding the owner. In his judgment the cranberry was one of the most profitable fruits, and our cranberry bogs are mines of wealth.

Mr. Thissell of the Senate was called upon, and made a few remarks descriptive of the mode of gathering cranberries in Massachusetts. It is done with a sort of rake which gathers them from the bushes without injury to the vines.

Mr. Wells of the Senate was called upon, and said there were ten or fifteen acres of bog in Wells which yielded from three to seven hundred dollars worth of cranberries annually.

To Save Frozen House Plants.—When plants are found to have been frozen during the night, they should not be removed to a warm place, but on the contrary, they should be dipped in cold water, and set in some cool place where they will not freeze, and also in the dark. They will then have a chance to recover if not completely dead.—*Michigan Farmer.*

New Rochelle Blackberry, its name.—The correct name, New Rochelle, has been adopted in all American books on pomology, and by nearly or quite all the principal American nurserymen. We now scarcely ever see the name "Lawton" used, except in the advertisement of the person who bears this name.—*Country Gentleman.*

PROFITS OF APPLE RAISING AND CIDER MAKING.—Very few are aware of the extent to which the manufacture of cider is carried within a few miles of New Haven. In conversation with a gentleman from Cheshire a day or two since, we were surprised to learn that in that town alone 5,000 barrels have been made the past season from apples raised in that and adjoining towns, nearly all of which is now in process of clarification, and will be ready for market early in the spring. Four establishments alone have made 1,500 to 2,000 barrels each, which is already disposed of, and will be sent to market as soon as ready for use. This when clarified, is as pure as wine, and is sold readily in New York to bottle, for $4 per barrel for the liquid, and when bottled is in great demand at the South at $5 per dozen. The business is rapidly increasing, and the cultivation of the apple is as likely to prove as profitable as that of the grape at the West, where thousands of dozens of wine are put up yearly. The cultivation of the grape at Cincinnati has increased within a year or two extensively, and although attended with a much greater expense, is now the most profitable crop of that locality. The fruit growers of Connecticut can cultivate apples with but little expense, and can realize at least 20 cents per bushel for all they can raise. The past season those who have mills at Cheshire have paid from 18 to 20 cents per bushel for all they could find, taking them from the orchards in which they have been collected, the raiser being subjected to no expense except that of picking up and piling in heaps.—*New Haven Journal.*

THE LESSON OF THE GARDEN.—A garden is a beautiful book, written by the finger of God; every leaf is a letter. You have only to learn them—and he is a poor dunce that cannot, if he will, do that—to learn them, and join them, and then go on reading and reading, and you will find yourself carried away from the earth to the skies by the beautiful story you are going through. You do not know what beautiful thoughts—for they are nothing short—grow out of the ground, and seem to talk to a man. And then there are some flowers, they always seem to me like over-dutiful children; tend them ever so little, and they come up and flourish, and show, as I may say, their bright and happy faces to you.—*Jerrold.*

THE APPLE CROP OF NIAGARA AND ORLEANS COUNTIES, N. Y.—The papers of the above counties are making careful estimates of the product, in dollars, of the apple crop of 1859. That of Niagara foots up at $300,000, and Orleans at $250,000. This is the amount received for fruit sold for exportation. No estimate is made of that used for home consumption.—*Rural New Yorker.*

PROFITABLE BLACKBERRY FIELD—The Editor of the Norfolk, Ct., Gazette, last fall visited the New Rochelle fields, belonging to Messrs. George Seymour & Co., and says that three acres under cultivation have produced over four hundred bushels of blackberries, with a cultivation that cost $8 per acre, and the blackberries, when sold in New York, realized, above expenses, $3,200, or more than $1000 per acre. Besides this, thirty barrels of blackberry wine, now worth $50 per barrel, have been made from the berries grown on the same lot, and there are plants enough for the sale of next spring to make the net yield from this small lot at least $5000.—*Boston Cultivator.*

DESTRUCTION OF FORESTS.—Do our American farmers sensibly realize that the great majority of them are laying the foundation, and that permanently, to have their farms without a good wood or timber lot, in fifty years? I am led to such a conclusion when I compare the present condition of the heavy timber lands with that of forty-five and fifty years ago. Let them have the same treatment fifty years to come, and the words of the Prophet will be fulfilled: "The trees of the forest shall be so few in number that a child can write them." Now, Messrs. Editors, would it not be beneficial to a large proportion of your readers. to give this subject a thorough investigation in the RURAL,—show how it is being done, and also what is the remedy? To effect this object, I send you a few of my reflections and conclusions on the subject.

First—How are timber lands likely to be made bare of timber? By continually pasturing them. In such woodlands the underbrush has long disappeared, and much has become seeded to grass. This gives a good chance for the wind, when the leaves drop from the forest timber, to blow them into the hollows, or pile them up into heaps by old logs, or carry them along by the wind among the timber, and lodge them in gullies, or over the brink of the ridges in windrows. Examine such woodlands, and where the leaves are carried off, the most of the timber is dying out fast. Why? Because there it has become the most seeded to grass, its roots occupy the soil and col-

lect most of the nutriment from the small amount of leat mould, and the roots of the timber are driven to the subsoil for support. The tops of the trees, of all sizes, are fast becoming dry, because the roots are robbed of that food they need to keep up a thrifty growth ot timber.

Second—What treatment should timber lands receive to give the most thrifty growth to the timber? This is the question that should be understood. I answer, stop pasturing them and let a thicket of underbrush start up. This is actually necessary, for several reasons, to give a thrifty growth to the larger timber. It keeps a supply of young timber coming along to fill the place of the old that is decaying by age. A thicket of underbrush keeps the grass from growing, and holds the forest leaves where they drop, keeping them spread in an even coat over the ground, preventing evaporation in the summer, and holding moisture more evenly in the soil. Examine the leaf mould, and it is found filled with a thicket of small, fibrous roots, clear up to the dry leaves. Here is found the very nutriment needed to give a thrifty growth to the timber.—*Correspondence Rural New Yorker.*

The Dairy.

PRODUCTS OF GOOD COWS.

At the last exhibition of the Hampshire Franklin and Hampden (Mass) Agricultural Society, nine milch cows were entered for prizes. We condense from the Transactions of the Society a portion of the statement furnished by the owners of the cows, relative to their products.

1. A. J. Lincoln, Northampton. Cow supposed to be grade Durham. Calved about the middle of March—during month of May, 1859, was fed on cut hay and six quarts corn meal and rye bran, equal parts per day. She gave of milk during this month, 1178¼ lbs, equal to 38 lbs per day. June 1st, she was turned out to pasture, and no extra feed given—and for the month of June gave 1220½ lbs, equal to 40⅔ lbs per day. For seven successive days in June, viz., from 10th to 17th, she gave 287 lbs, or 41 lbs per day. For the month of July, she gave 1130 lbs, equal to 36½ lbs, per day. For three months ending July 31st, she gave 3528¾ lbs, equal to 38⅓ lbs per day. Milk was sold and no butter made.

2. W. B. Hale, Northampton. Grade Durham cow, eight years old. Mr. Hale bought her November 25, 1857, two weeks after calving. From this time till June 21, 1859, (when she again calved) a period of 572 days, she gave 13,056 pounds 3 ounces of uncommonly rich milk, an average daily for the whole time (including 24 days in which she was dry) of 22 lbs. 13 oz., over nine beer quarts or eleven wine quarts. No butter was made—milk sold.

3. E. Fitts, Northampton. Cow seven-eights Durham, 7 years old. Calved January 20, 1859. From 1st to the 10th June, she averaged 21½ quarts milk per day, weighing 53 lbs. Feed—the best of hay and 1 peck of roots per day.

From the 10th to the 20th of September she averaged 35 lbs per day—feed, poor pasture and 4 quarts of shorts per day.—From the 10th to the 20th of September, was made from her milk 17½ lbs. of nice butter.

4. Alfred Clapp, Huntingdon. Cow, half-breed Alderney, 4 years old. She gave, on common pasture, from September 21 to 28, an average of 23 lbs. of milk per day, which produced an average of 1 lb. of butter to 15 lbs. of milk, under good circumstances, thus making 1½ lbs. butter per day.

5. T. E. Elliott, Southampton. Half-blood Hereford heifer, 3 years old. She came in the first time June 6, 1858, when two years and six days old, her milk averaging from 28 to 32½ lbs. per day for ten months, and making 1 lb. of butter per day on an average.—*Country Gentleman.*

Arts and Manufactures.

Mineral Discovery.—A correspondent of the Brockville *Recorder*, intimates that a very rich mine had lately been discovered in the front of Yonge, C. W. The vein first opened consisted of very pure Nickel, and it is supposed that copper and even gold may yet be found in said mine. The mine is located on the farm belonging to Mr. Benjamin Bayle, and was discovered last summer by a very ingenious mineralogist, named W. Burham. The work has been pursued to some extent last summer, but will be properly opened the ensuing spring.

Manufactures.—The Toronto *Leader* lately stated that an English manufacturing company has taken a large building in Dundas, erected about two years ago by Messrs. Holt & Co., at a cost of some ten thousand pounds, with a view of turning it into a cotton manufactory. The machine-

ry is to be sent from England, and the manufactory to be got into operation early next Spring. Three hundred hands, it is said, will be employed in this establishment.

Over three hundred of Sorghum, or Chinese sugar-cane molasses, was made in Carroll county, Indiana, last Fall. It sold readily at 60 cents per gallon.

The iron exported from the Lake Superior mines during the past season, is estimated at $402,000 in value.

A stream of salt water has been found at the Montezuma, N. Y., salt works which yields 62 per cent. The yield at Syracuse is 53 per cent.

The amount of flour manufactured in Chicago in 1859, was 185,029 bbls against 140,602 bbls in 1858, and 90,000 in 1857.

The use of the decimal system as regards measures of length, is to be obligatory in Portugal from the 1st of January next.

Scientific.

Sea Birds.—The question is often asked where do sea birds obtain fresh water to slake their thirst, but we have never seen it satisfactorily answered till a few days ago. An old captain says that he has frequently seen these birds at sea, far from any land that could furnish them water, hovering around and under a storm cloud, chattering like ducks on a hot day at a pond, and drinking in the drops of rain as they fall. They will smell a rain squall a hundred miles or even further off, and scud for it with inconceivable fleetness. How long sea birds can exist without water is only a matter of conjecture, but probably their powers of enduring thirst are increased by habit, and possibly they go without it for many days if not several weeks.—*Honolulu Advertiser.*

The Study of Storms.—A few weeks ago the British Association for the advancement of Science, passed a resolution praying the Board of Trade to consider the possibility of watching the rise, force, and direction of storms, and the means for sending, in case of sudden danger, a series of warning telegrams along the coast. A few days ago, at a meeting of the council of the association at Buckingham Palace, the Prince Consort in the chair, this resolution was again brought forward, and, after some debate, was referred as a special recommendation to the care of the Board of Trade.

The Gulf Streem as a Fertilizing Agent.—If we follow the Gulf Stream across the ocean, we perceive how fully it fulfils the purpose for which it was designed. Sir Walter Scott tells that the pools in the Orkneys are never frozen, the the effects of the grand hot water warming apparatus of a far distant shore being sensibly felt even in these islands, which are situated in latitude nearly ten degrees further north than the ice-bound coast of Labrador. We all know that in Great Britain there is an extraordinary difference between the eastern and western coasts, so great indeed as to induce completely different systems of agriculture. The Emerald Isle owes her splendid grazing land to the soft west breeze, born of the Gulf Stream, which strikes full upon her shores; the western shores of England are robed in bright green pastures nourished with the warmth and moisture issuing from the same tropical source. The dairy produce of Great Britain has its root and issue in this steadfast hot water river in the ocean the limits of which modern science has so accurately mapped; nay, the florid, plump looks of our people, and the large size of our domestic animals, are but effects of that moist and genial atmosphere which finds its birthplace in the beneficent Gulf Stream. —[*London "Once a Week."*

A growing subject of alarm in France is the frequent deaths within the last year, of individuals bitten by a certain kind of fly. The death is certain and rapid if the bite is not immediately incised and cauterized, either with the actual cautery or with some active caustic substance. Death takes place most frequently in from four to twenty-four hours, and with much the same symptoms as from the bite of venomous snakes. It is supposed that the insects, in order to produce such instantaneous and powerful effects on the human body, must have recently fed on some decayed animal matter.

Veterinary.

Who Breeds the best Roadsters?—It may be recollected that at the Agricultural Show at St. Louis, Mo., last fall, $1000 was offered as a premium for the best roadster stallion. It was announced that this liberal premium was given to Stockbridge Chief, a son of Black Hawk, bred in Massachusetts, and now owned in Cincinnati, Ohio. But we have heard of some interesting additional facts, in regard to their decision, viz., that the judges in the first place selected from the great number offer-

ed, *six* which were deemed the best, and then made a critical examination of them to find the best *one*. Of these six, five were sons of Black Hawk and the sixth a grandson—the latter being Green Mountain Black Hawk, whose sire was Sherman Black Hawk. or the North Horse.—*Boston Cultivator.*

Soundness and Unsoundness of Horses —Although much has been written upon this subject, it, unfortunately for the profession, still remains an unsettled question, as to what is soundness and what is unsoundness; or why it is that such conflicting opinions are given by the members of the veterinary profession as to soundness or otherwise in their examination of horses.

Perhaps a candid inquiryinto the *cause* of the latter will in some measure answer the former question; at all events, so far as its *legal* definition is concerned. As in medicine it is, I believe, of the first importance to ascertain and remove the *cause* and afterwards to apply the remedy, so, perhaps, here this theory is admissible.

I am inclined to think that much of the difficulty now enveloping this question has in a great degree been increased and extended by veterinary surgeons themselves, and not so much by any serious or palpable neglect in the law of warranty. Further, that this state of things has been the result, and is attributable to examinations being made, and opinions given too prematurely, that is, without due consideration; to which may be added, too great an anxiety manifested for the interest of their employers. A prejudiced mind is one of the stumbling-blocks ever in the way of the professional man, and unless it is met by timely antagonistic determination it becomes the high road to fatal error.

Who has not seen the mistakes in judgment that many have fallen into, and which afterwards have been freely confessed, by the habit, apparently trifling, but nevertheless serious, and much to be deprecated, of "nodding the head," when the animal is running and under examination? I hesitate not to say that this simple act has prejudiced many a mind. Then, is not the very wish, if too eagerly pursued, to do the best for our employer in these cases, *too* apt to prejudice the mind? and thereby to render the *hand* and the *eye* a little too ready to indulge in this same prejudice? And, again, it does unfortunately sometimes happen, however we could desire it were otherwise, but we must not disguise the fact, that with other causes *jealousy* will lend the helping hand to prejudice.

If some such deplorable causes as these, with many others of the like kind, easily adduced, did not too frequently exist, we should not be so often pained by hearing and reading those daily reports of the large amount of hard swearing in our courts of justice which characterise horse causes. And I cannot help thinking that if veterinary surgeons would take the law as now defined for the foundation whereupon to raise their structure, instead of many of their own fancies as to what is law, it would then be a simple question for them to answer, as to whether or not many of the numerous diseases named did exist at the time of their examinations or not. Indeed, this I presume to be the strict duty of the veterinary surgeon; and for a catalogue of these I with pleasure refer him to that concise and excellent work, "Olliphont on the Soundness and Unsoundness of Horses."

Let the veterinary surgeon, when consulted, go to this with an unbiassed mind and a firm resolve to look at the case calmly and dispassionately, and with a determination under no circumstances whatever to swerve from that course which his professional knowledge, honestly and without favor, so loudly calls upon him to pursue; never caring by whom employed or by whom opposed, or whether or not the opinion he may give "*suits*" his employers or meets his anxious desires. Let him follow this course in all cases, and he will, I think, find his duty respecting an examination as to soundness free from all difficulties, and plainly defined.

I cannot conceive veterinary pathology and anatomy to be really in such a state of darkness as not to render easy to all her advocates the detection of any disease acknowledge by the law as constitutional unsoundness; but I *can* conceive, and have often witnessed, what flagrant errors, stretches of the imagination, and a want of strict adherence to common sense and scientific knowledge, urged on by prejudice, *will* and invariably *do* lead to; together with the latitude given to persons who are inclined to accept the opportunity of setting forth their peculiar notions as to the *probability* of an animal *some time or other* taking on a certain disease whereby he *may* beome unsound. This has ever surrounded the question with thick clouds of mystery, and is called "predisposition," a word which unhappily, by its misapplication, "*even as good remedies*," has become a poison, and like *the explain all* "inflammation," has become a mere peg whereupon to hang the cap of ignorance. Again, you will hear of professional men not only disagreeing about

the existence or otherwise of disease, but also as to what diseases by their appearance render an animal unsound. But, in this particular the veterinary surgeon is not the only one who creates a difficulty. Are not the most eminent judges of our land at variance? and do they not make a way of escape by each propounding and establishing his peculiar views? Surely this should not be. Again, who has not witnessed the different opinions given as to soundness even when two veterinary surgeons *agree* that some certain disease does exist, and which is acknowledged by the *law* to be unsoundness? The one feels it his duty (as no doubt it is) *legally* to reject such an animal; the other just as strenuously opposes it, because he says the horse does not show any lameness.

Now, the law does not sanction any such ambiguity as this. I, therefore, cannot think that the law must be entirely blamed for the present unhappy state of things.

That the law of warranty does require *some* alteration, there is no doubt, and at a future period I will respectfully submit in *what* particulars, and offer a few suggestions as a remedy.—G. Boddington, M.R.C.V.S., *in Veterinarian.*

The Poultry Yard.

To Fatten Chickens.—It is hopeless to attempt to fatten them while they are at liberty. They must be put into a proper coop, and this, like many other poultry appurtenances, need not be expensive. To fatten twelve fowls, a coop may be three feet long, eighteen inches high, and eighteen inches deep made entirely of bars. No part of it solid; neither top, sides nor bottom. Discretion must be used according to the sizes of the chicken put up. They do not want room; indeed the closer they are the better, provided they can all stand up at the same time. Care must be taken to put up such as have been accustomed to be together, or they will fight. If one is quarrelsome, it is better to remove it at once, as, like other bad examples, it soon finds imitators. A diseased chicken should not be put up. The food should be ground oats, and may either be put in a trough, or on a flat board running along the front of the coop. It may be mixed with water or milk; the latter is better. It should be well slaked, forming a pulp as loose as can be, provided it does not run off the board. They must be well fed three or four times per day—the first time as soon after daybreak as may be possible or convenient, and then at intervals of four hours. Each meal should be as much and no more than they can eat up clean. When they have done feeding, the board should be wiped and some gravel may be spread: it causes them to feed and thrive. After a fortnight of this treatment you will have good fat fowls. If, however, there are but six to be fatted, they must not have as much room as though there were twelve. Nothing is easier than to allot them the proper space, as it is only necessary to have two or three pieces of wood to pass between the bars, and form a partition. This may also serve when fowls are up at different degrees of fatness. This requires attention, or fowls will not keep fat and healthy. As soon as the fowl is sufficiently fatted it must be killed, otherwise it will still get fat, but it will lose flesh. If fowls are intended for the market, of course they are, or may be all fatted at once; but if for home consumption, it is better to put them up at such intervals as will suit the time when they are required for table. When the time arrives for killing, whether they are meant for market or otherwise, they should be fasted without food or water for twelve or fifteen hours. This enables them to be kept for some time after being killed, even in hot weather.—*Cottage Gardener.*

Domestic.

Coffee.—To have this beverage in perfection, two things are indispensable. The coffee must be roasted well, and then made in a boiler of right construction. The roaster should be a close sphere, or cylinder. The aroma, upon which the good taste of the coffee depends, is only developed in the berry by the roasting process, which also is necessary to diminish its toughness and fit it for grinding. While roasting, coffee loses from fifteen to twenty per cent. of its weight, and gains from thirty to fifty per cent. in bulk. More depends upon the proper roasting than upon the quality of the coffee itself. One or two scorched or burned berries will materially injure the flavor of several cupsful. Even a slight over-heating diminishes the good taste. The best mode of roasting, where it is done at home, is to dry the coffee first in an open vessel until its color is slightly changed. This allows the moisture to escape. Then cover it closely and scorch it, keeping up a constant agitation so that no portion of a kernel may be unequally heated. Too low and too slow a heat dries it up without producing the full aromatic flavor; while too great heat dissipates the

oily matter and leaves only bitter charred kernels. It should be heated so as to acquire a uniform deep cinnamon color and an oily appearance, but never a deep dark brown color. It should then be taken from the fire and kept closely covered until cold, and further until used. While unroasted coffee improves by age, the roasted berries will very generally lose their aroma if not covered very closely. The ground stuff kept on sale in barrels or boxes, or in papers, is not worthy the name of coffee.

Coffee should not be ground until just before using. If ground over night it should be covered; or, what is quite as well, put into the boiler and covered with water. The water not only retains the valuable oil and other aromatic elements, but also prepares it by soaking for immediate boiling in the morning.

In regard to coffee making, no good housekeeper can hope to succeed well if the old method of boiling in a common coffee pot is adopted. The "*Old Dominion*" coffee pot, now so extensively used throughout this country, is, beyond all question, the best contrivance yet introduced to the public. In using this according to the plain directions given, bad coffee is simply impossible. Many house-keepers, who use this coffee pot, grind their coffee and put it in the boiler over night, setting the boiler on the range, or near the fire, but not where it can boil. The beverage thus produced, is rich, mellow, and of a most delicious flavor. We commend this plan to our lady readers. One of the strong recommendations of the Old Dominion coffee pot is its economy. It saves from one-fourth to one-third of the berry. We have used one in our family for several months past, and being very fond of a cup of real good coffee, would not dispense with it for ten times its cost.—*Farmer & Gardener.*

To prevent Rats undermining Cellar Walls–The stability of cellar walls is sometimes seriously affected by rats digging underneath them and thus weakening the foundation. In order to prevent such injury, after the cellar walls are completed and pointed, you must dig a small trench inside of them, about one foot wide and half a foot deep. Now fill this trench nearly full of small stones and water-lime mortar; then cover the stones and mortar with the earth taken from the trench. If thus you guard the bottom of the walls, you will find all the efforts of rats at undermining to be utterly vain; they will have to go sneaking out at the very door or hole by which they entered. Some people say that rats from the outsides dig down under the wall, and thus under the cellar; but this is a mistake. The fact is, they enter the cellar by the door or some hole, and then, if this entrance is closed against them, they dig a passage out under the wall. Such passage they cannot make if the inside trench is as described, as they always begin to dig close to the bottom of the wall; and hence, when they encounter the stones and mortar, they are disheartened and abandon the undertaking. If plank close to the wall should lie on the cellar bottom, they will commence digging at the inside edge, although it be a foot or more from the wall. If a quantity of potatoes should be piled up in the middle of the cellar, the rats will begin to dig under the pile, or even under the bottom of the chimney, perhaps instinctively expecting thus to work their way out. But to guard against their digging operations cover your cellar-bottom with a thick coating of water-lime and sand, and the saucy depredators won't trouble you any more.—*Rural American.*

To Destroy Rats.—The *Griffin (Ga.) Empire State* says that a lady in that city, whose house became infested with these troublesome visitors, gives the simple remedy of dissolving copperas in water (make it strong), and sprinkle the most prominent places; it will make them leave at a "two-forty" rate and no mistake. She tried it successfully, and has not been troubled with rats or mice since. It is simple, and will not cost much to try it.

A Cheap Fumigator.—The following will be found to be a cheap and pleasant fumigator for sick rooms, and diffusing a healthful, agreeable and highly penetrating disinfectant odor in close apartments, or wherever the air is deteriorated. Pour common vinegar on powdered chalk until effervescence ceases, leave the whole to settle, and pour off the liquid. Dry the sediment and place it in a shallow earthen or glass dish, and pour on to it sulphuric acid until white fumes commence arising. This vapor quickly spreads, is very agreeably pungent, and acts as a powerful purifier of vitiated air. Concentrated and reduced again to the liquid state, it constitutes aromatic vinegar of commerce.—*Scientific Artizan.*

Mrs. Martineau on Cookery.—What is to be done?—for cooking does not come by nature, nor even ordering a table by observation. The art must be learned like other arts, by proper instruction. We want, and must have, schools of domestic management now that every home is not such a school. Mothers can at least teach their

daughters to know one sort of meat from another, and one joint from another, and, in a rougher or more thorough way, what to order in the every day way and for guests. Thus much, then, every girl should know, from childhood upwards. A little practice of observation in the markets would soon teach a willing learner to distinguish prime articles from inferior kinds, and to know what fish, flesh and fowl are in season every month in the year. We have seen ladies buying pork under a sweltering summer sun inquiring for geese in June and July, and taking up with skinny rabbits in May, and letting the season of mackerel, herrings, salmon, and all manner of fish, pass unused. —*Once a Week.*

Editorial Notices, &c.

The Agriculturist Post Free.—Some of our subscribers having recently informed us that the Postmasters from whom they received the *Agriculturist* had been charging them postage on its delivery, under the impression that it was their duty to do so under the new postage law, the Secretary of the Board of Agriculture, with the view of preventing any similar mistakes in future, communicated with the department of the Hon. the Postmaster General at Quebec, requesting an authoritative notice upon the subject. To that communication the subjoined reply was received, which, our readers will perceive, sets the matter satisfactorily at rest:

POST OFFICE DEPARTMENT,

Quebec, 30th Jan., 1860.

Sir,—

I have the honor to acknowledge your letter of the 26th inst., representing that some of your subscribers have complained that postage has been claimed from them on their copies of the "Canadian Agriculturist."

In reply, I am directed by the Postmaster General to say, that the "Canadian Agriculturist" being a periodical specially devoted to Agriculture, is clearly entitled by law to free transmission by post in this Province, when addressed directly from the Office of Publication; and that Postmasters have therefore no right to charge postage thereon.

If you will be good enough to inform the Department of the names of the Post Offices whereat such charges have been made, the Postmaster General, who regrets that such errors should have occurred, will specially address the respective Postmasters in correction of their misconception of instructions in this particular.

I am, Sir,
Your most obedient
Humble servant,
EDWIN KING,
Secretary.

Hugh C. Thomson, Esq.,
Sec. Board of Agriculture, U. C.,
Toronto.

Our Subscription List.—We are happy to be able to state that the subscriptions for the *Agriculturist* are coming in very satisfactorily this year. We have still, however, plenty of back numbers on hand, and shall be glad to have the whole edition taken up as soon as possible.

A Meeting of the Board of Agriculture will be held at Toronto on the 23rd instant.

We have no *Transactions* this number. The conclusion of the Rev. Mr. Mulkins' Address will be given in our next.

Market Intelligence.

TORONTO MARKETS.

Tuesday, Feb. 14, 1860.

The grain market was altogether well supplied to-day. Competition was brisk, and late extreme quotations were fully realized, buyers exhibiting considerable spirit and animation.

Fall Wheat—About 1,500 bushels was the extent of the deliveries. Prime samples brought as high as $1 27c.; the range of prices being from that figure to $1 15c per bushel.

Spring Wheat—About 500 bushels were sold at from 95c a $1 04c per bushel.

Peas—500 bushels at from 55c a 58c.

Oats—1,000 bushels from 34c a 37½c.

Pork—75 hogs were sold at from $5 75c a $6 37½c per 100 lbs.

Hay—Good supply at from $12 a $20 per ton.

STRAW—$7 a $10 per ton.

FLOUR—No change in price. We quote Superfine No. 2, $4 10 a $4 20; Superfine, No. 1, $4 40 to $4 50; fancy, Spring Wheat $4 75 to $4 80; fancy, Fall Wheat, $4 90 to $5 00; extra, $5 25 to $5 45; double extra, $5 50 to $5 75.

NEW YORK MARKETS.

NEW YORK, Feb. 14.

FLOUR—Receipts 14,000 bbls; State and Western dull and rather easier; Sales of Western 43,000 barrels unsound at $4 a $4 80; superfine State $5 a $5 15; extra State $5 25 a $5 40; round hoop Ohio $5 80 a $5 95; common to good superfine Western $5 a $5 15; extra Western $5 25 a $5 45; Southern dull; sales 800 bbls at $5 50 a $5 75 for mixed to good, and $5 80 a $7 for fancy and extra. Canadian flour unchanged and dull; sales 200 bbls at $5 40 a $6 75 for extra.

GRAIN—Wheat dull; sales 2,200 bushels White Canada $1 40. Corn unchanged; sales 15,000 bushels new yellow at 78c. Oats quiet; Southern and Jersey at 38c a 41c; Northern and Western 44c a 46c.

PROVISIONS—Pork firm; sales 250 bbls mess at $17 50 for old and $18 37 for new prime, $12 25 for old prime, and $14 25 for new do. Lard quiet and firm; sales small at 11c a 11¼c.

MONEY continues unchanged, easy and plenty.

BRITISH MARKETS.

(*Per Canadian Steamship "Bohemian."*)

LIVERPOOL, Jan 11.

FLOUR—American in demand at full rates; Western Canal 23s a 24s; Philadelphia and Baltimore 23s a 25s; white not so strong of tone as this day week; white and mixed 9s 9d a 11s 6d; red 8s 6d a 10d per 100 lbs. Corn not very active, but one or two parcels had advanced 6d per 480 lbs; white 36s a 38s; yellow 32s; mixed 31s a 31s 6d.

BEEF—Where sales have been effected large rates have been paid. In pork little has been done. Lard—Not so large a business as last week.

ASHES—pots 28s a 29s; pearls 30s.

Advertisements.

PIGS FOR SALE.

FOR SALE, A LOT OF THOROUGH Bred Small Breed Berkshire Pigs.

R. L. DENISON.

TORONTO, Feb. 14, 1860.

GALLOWAY BULL.

FOR SALE, A THOROUGH BRED FOUR Year Old Galloway Bull.

E. W. THOMSON.

CARLTON WEST,
Februery 14th, 1860.

QUEEN'S SEEDSMEN.

PETER LAWSON & SON.

EDINBURGH, 1 George IV. Bridge.
LONDON, 27 Great George Street, Westminster, S. W.

ON ACCOUNT OF THE NUMEROUS applications which have been made to PETER LAWSON & SON, to send their Lists of Seeds and Nursery Produce to the United States and Canada, they beg to inform the Trade in America that they are prepared to furnish them with

PRICE LISTS

and to assure them that any orders they may be favored with will receive their best attention.

All orders must be accompanied by Cash, Satisfactory References in England, or may be forwarded through

CRAIG & NICOL,
No 6 Bowling Green, New York.

JANUARY, 1860.

SEEDS! SEEDS! SEEDS!

AS the season is near at hand for parties requiring GARDEN & FIELD SEEDS to look out for the best to be had, I would beg to call the attention of all, and at present, particularly of WHOLESALE PURCHASERS, to my fresh stock which is now about completing; as for quality and extensiveness it cannot be surpassed by any establishment in the country.

Wholesale priced catalogues (for the trade only) are now ready, and may be had on application.

Catalogues for this season, containing many new and rare acquisitions, together with numerous useful remarks and hints for the raising of Vegetables from Seed, &c., will also be ready in a fortnight.

Orders from a distance attended to with usual care and despatch.

J. A. SIMMERS,
Seedsman.

Corner of Front St. and West Market Place.
TORONTO, Jan. 30, 1860.

YONGE STREET SEED STORE AND FLOWER GARDEN,

Established 1836.

Fresh Garden, Field and Flower Seeds, for Spring sowing.

THE Subscriber begs to inform his friends and the public, that his stock of Fresh Seeds is now complete, and very extensive, embracing almost every sort of Seed that is adapted to the country.

The stock of Agricultural Seeds is large and well selected, and the vitality of each sort being fully tested, the genuineness of the seeds may be fully relied upon.

Comprising a large stock of:—Spring Wheat, Spring Tares, Tartar and Poland Oats of the most approved kinds; Field Peas, including Golden Vine, and other approved sorts, White and Black Eyed Marrow Fats; Barley, two and four-rowed; Imported Purple and Green Top Swedish Turnip, Imported White Globe do., Imported Yellow Aberdeen do., Imported Six-weeks or Stubble do., Imported Red Round, Red Globe and several other sorts of Turnips; Long Red and Yellow Globe Mangel Wurzel; Sugar Beet and Field Parsnip, Large White Belgian Carrot and Spring Rape; Long Orange, Red, Surrey, and Altringham Carrot; Timothy, Orchard, and English Rye Grasses; Red and White Dutch Clover; French Lucerne, Cow, and Hungarian Grasses, Alsike or Perennial Clover; Yellow and White Millet; Early Potatoes of the most approved sorts; Corn, 8 rowed Early Canada, King Philip, Yellow Dutch, and several other sorts.

Horticultural Books, and Garden Tools, Draining Tools, One Horse Ploughs, and Cultivators of all kinds.

The Subscriber has also a full and general assortment of all kinds of Garden Seeds suitable for the country, a catalogue of which, with directions for sowing seeds, can be had gratis.

Merchants and Agricultural Societies ordering seeds in bulk will be supplied at wholesale prices.

Complete assortment of Garden Seeds neatly put up in small papers, with directions for sowing, and sold by the box, containing 150 papers. at very moderate prices.

Twenty packages of Flower Seeds, choice sorts, will be sent free by post to any part of the province, to the address of any party remitting $1, free of postage, or 25 packages, postage unpaid.

JAMES FLEMING,
Seedsman to the Ag'l As. of U. C.

Toronto, February, 1860. 6-t

YONGE STREET SEED STORE.

CHOICE VEGETABLE & FLOWER SEEDS FREE BY MAIL.

THIRTY SIX VARIETIES FOR TWO DOLLARS.

THE Subscriber, wishing to give parties who reside at a distance an apportunity to test the quality of his Seeds, will, on receipt of $2, free of postage, send free to any Post Office in Canada, 24 Full Sized Papers of VEGETABLE SEEDS, many of them containing half an ounce of seed, and 12 Papers of Choice FLOWER SEEDS, with Descriptive Catalogue and Box included—the seeds to be of my own selection. None but the most useful and desirable varieties will be sent.

JAMES FLEMING.
Seedsman to the
Agricultural Association of U. C.

TORONTO, Jan., 1860.

IMPROVED SHORTHORNS.

THE HON. ADAM FERGUSSON, WOODHILL, WATERDOWN, P. O., will have Seven Thorough-bred Durham Cows to calve in Spring. These cows are in calf to "ETHELBERT," bred by Samuel Thorne, Esq., and have a large portion of "DUCHESS" and "BATES" blood. They may be seen at any time at Woodhill, within a half hour's walk of Waterdown Station, G. W. R. R.

Orders for bull calves must be sent by the 1st of March. Full pedigrees will be furnished. Price of each calf $60.

Four of the Cows will be sold at moderate prices.

WOODHILL, Jan. 2nd, 1860.

HUNGARIAN GRASS.

This valuable grass was introduced into this neighborhood three years since by our County Agricultural Society, and has given very great satisfaction to all who have tried it. Its ordinary yield is FOUR TONS TO THE ACRE, and in some cases SIX TONS have been cut. Cattle and all kinds of Stock are very fond of it, preferring it to Timothy. Its fattening qualities too are believed to be superior to those of any other known grass.

The Subscriber has obtained a quantity, and will send to any person making a post-paid application, sufficient to sow one-third of an acre for One Dollar, or One Bushel for Six Dollars.

All seed will be sent free of charge.

ARCHIBALD YOUNG,
Treasurer,
Lambton County Agr. Society

Sarnia, February 10, 1860.

THE AGRICULTURIST.

ARRANGEMENTS FOR 1860.

THE "AGRICULTURIST, AND JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA" for 1860, will be published on an entirely new system.

It will appear twice a month, and will consequently be much more useful as a medium of intelligence on all subjects affecting Agricultural Societies, and farmers generally, than heretofore.

Each semi-monthly number will consist of 32 pages, and will be printed on fine white paper.

Notwithstanding the increase of size, and of times of publication, the price to single subscribers will be only half a dollar for one copy per annum.

Further, even at this low rate, a bonus will be given of one free copy for every 10 copies ordered and paid for in advance. That is to say, for $5 remitted, 11 copies will be mailed; for $10, 22 copies; for $15, 33 copies will be mailed, and so on.

The *Agriculturist* is Post Free.

It will consequently be the cheapest paper of its kind, and contain the largest amount of reading matter of any published on this continent.

In addition to the very low terms of subscription, as a further remuneration to those who exert themselves to obtain subscribers, the undermentioned money premiums will be paid to those who send in the largest lists accompanied with the amount, before or on the 1st day of April next. Subscriptions will be received at any time, and the amount of each list reckoned up on the 1st April. The money must be received, not merely mailed, on that day. The following are the prizes offered:—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of..... $20

To the person who shall send in the next largest list..... 19

To the person who shall send in the next largest list..... 18

To the person who shall send in the next largest list..... 17

To the person who shall send in the next largest list..... 16

To the person who shall send in the next largest list..... 15

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"AGRICULTURIST OFFICE,"
Toronto, November, 1859.

FOR SALE.

A THOROUGH-BRED AYRSHIRE BULL 3 years old.

RICD. L. DENISON.

Toronto, July 30, 1859.

To Agricultural Societies, &c.

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"Colonel," 569, A. H. B. The Colonel took the first premium as a yearling at Brantford.

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Jan. 3, 1860.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Advertisements—Five cents per line each insertion.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, MARCH 1, 1860. No. 5.

LAND DRAINAGE.

We are glad to see that this important means of agricultural improvement is beginning to occupy public attention, and that our city press has taken up the subject in an earnest and patriotic spirit. Mr. H. J. Boulton, of Humberford, is doing much, both by precept and example, in enlightening the minds of our farmers in relation to this matter; and we hope to have shortly the opportunity of submitting to our readers the details and results of that gentleman's practice. In the present business depression of this Province, arising in no small degree from the scanty crops which the soil has of late years yielded to rural industry, every feasible plan that may be proposed for increasing the produce of our fields, ought to be received with a welcome earnestness by all who are really desirous of promoting the improvement and prosperity of their country. This is a movement that knows nothing of creeds and parties, and has the strongest claims upon men of all ranks in the community.

Of the importance and benefits of underdraining, in all countries of the northern temperate zone, where usually the rain-fall is more or less considerable, we do not here intend to speak. Suffice it to say that in Canada there are good data for concluding that if draining were generally introduced, not only would our soils be rendered drier, warmer, and more easily and cheaply worked, but the seasons for sowing and reaping would be earlier, the crops of all kinds more abundant; and with a judicious course of rotation, combined with more thorough culture, those dreaded enemies—the rust and midge—whose devastations have of late years become so alarmingly great, would be comparatively eradicated. We hold, therefore, the objects contemplated by the more extended application of draining to be of primary national importance, demanding the earnest co-operation of the Legislature, and municipal bodies generally, with our more intelligent and enterprising farmers. In what shape, and to what extent, such extraneous aid could be beneficially given, we do not propose here to speak; the matter is already occupying public attention, and those who study it the most will be the first to acknowledge the difficulties with which it is beset. In the case of Government loaning money for this purpose, the most stringent regulations would be required to pre-

vent abuse. At present the Legislature may feel both unwilling to enter into the projects that are proposed, and incapable of carrying them out, in connection even with the best exertions of the owners and occupiers of land. We would be sorry, even by implication, to suggest unnecessary doubts, and sincerely hope that the subject, when it comes before the Legislature, will receive a thorough and impartial investigation.

Our main object in the present article is to call the attention of farmers in general to the ruder and less perfect means of ridding the land of much of its wetness that are at all times more or less within their reach. There is some risk amidst what is now being said and written on the subject of thorough drainage and the means of accomplishing it, that a large number of farmers, especially in the more remote districts, will conclude that the performance of this important operation is wholly beyond their reach and means. If the purchase of pipes or tiles, and conveying them to considerable distances; the laying out and executing of drains on a uniform scale, in accordance with modern European practice, be absolutely essential requisites, why it is plain that by far the larger portion of Canadian farmers must abandon the idea, for the present at least, as impracticable and hopeless.

Upon the wet and too frequently exhausted lands of the older settled districts, something approaching the English system of thorough drainage, as it is termed, may doubtless be profitably carried out, provided stone or tiles can be procured near the spot, at a moderate cost, and skilful labor obtained on similar terms. Mr. Boulton, we think, has, to some extent, proved this in his own practice. But upon nine-tenths of Canadian farms there are certain preliminary operations to be performed before underdraining can be extensively, and, as we believe, profitably carried into effect.

In making a farm out of the forest, and for many years after the trees have disappeared, the first and most necessary operations are unquestionably not underdraining, but the extracting of stumps, the levelling of the surface, and the cutting of open ditches, for the exit of stagnant surface water, into which covered drains can be subsequently made to empty. The first thing to be done in most instances is to improve the natural or arterial drainage of a farm or a district, which will often give great relief. The next step is surface or furrow draining, which if properly executed will be found tolerably effacacious. Wherever the first condition has been obtained the second can in general be readily effected. These primitive operations, which were as well known to and practised by the ancient Romans as ourselves, will in general be found as much as the settler for many years will be able to accomplish; and, which indeed, but comparatively few do in fact effectually perform. A farm well ditched along the fences, enclosing conveniently laid out fields,—with a constantly improving surface, and well constructed water furrows, will be found upon the whole tolerably dry; at all events it will be relieved of any very injurious amount of surface water. When the natural outfall is insufficient, and cannot be improved without the co-operation of neighboring-farmers; it will be seen to be the duty and interest of all parties concerned to unite, each doing his fair share in rendering the natural outfall sufficient. In case parties refuse to do what is reasonable in such a case, there is a law, we believe, that will compel them to do their part of the work; or the agrieved party can do it and charge the others with the cost. Until such preliminary operations as these be completed; the more refined and effective systems of draining, and indeed all other means of territorial improvement cannot be with any chance of success even begun.

Let no farmer conclude then, however distant his location or scanty his means, that because he cannot carry out under-

draining according to the modern practices of older and wealthier countries, that he is altogether impotent regarding this essential means of improvement. He can do something every year in the way suggested, and which will in a short time produce the most beneficial results. In going over any part of the country, the oldest settled districts even, on the breaking up of the spring, how large a portion of the cleared land, much perhaps that is in crop with winter wheat, does one observe partially covered with water,—which even with a spade—provided there were good ditches, might speedily be conducted away into the creeks and streams. A day or two's work in this manner at the approaching season, would frequently be found to afford considerable relief to portions of half drowned fields. To deepen a furrow here and there only a few inches will often discharge several thousands of gallons of stagnant water in a few hours. These are plain suggestions which every man can understand, and if he choose put into practice.

When a farm has got its natural drainage improved by deepening and straightening the water courses where needed, with open ditches and furrows through the lowest and wettest portions, and the surface sufficiently levelled and inclined to allow the surface water to escape freely into the natural or artificial channels thus provided, its owner may begin to think seriously of underdraining. Even when the latter operation is thoroughly carried out, open furrows cannot be safely dispensed with in this country, particularly when hollows or basin like depressions exist on the surface. The water which will be seen to accumulate in such places during the melting of the snow in spring, and not unfrequently during winter, should be conducted away to the nighest outlet by surface drains.—The frost in this country often penetrates so deeply that water may be seen to accumulate and remain several days, even though a covered drain lie beneath. It will take considerable time before a sufficient depth of the frozen surface becomes thawed for the water to find its way into the drain beneath, and when it does this suddenly and in large quantity the drain is frequently injured, if not destroyed. For this and other reasons we strongly urge the improvement of the surface, and the making of open furrows or ditches, preliminary to the commencemen nt of underdraining.

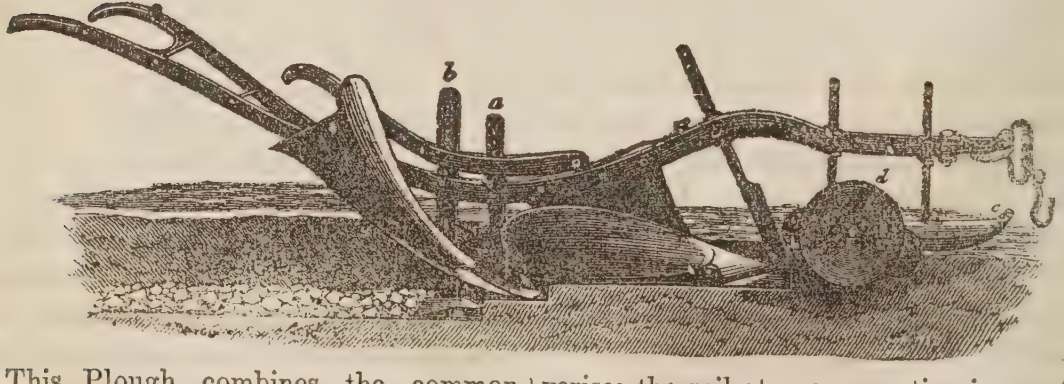
Nor need this latter operation(underdraining) be altogether deferred till the farmer is able to purchase tiles and execute the work in the most approved modern style, such as is now practised in older and wealthier countries. Much may be done towards relieving the land of superfluous water, by making here and there a drain, at the right places, with a view of cutting off the supply from the higher to the lower levels, and conducting the water to the nearest outlet. A single drain, cut to a proper depth in the right direction, will sometimes divert the water of a permanent spring, and thus cut off the cause of wetness from an acre or two of ground, that was before comparatively worthless.

As to the *materials* for making drains, where stones cannot be conveniently procured, and pipes or tiles are too expensive on account of distance of carriage, or otherwise, the farmer need not give up the idea of commencing the needful operation in despair. A trench dug out, gradually narrowing to the bottom, and filled ten or twelve inches with old rails, under-brush, &c., will generally prove effectual for several years. It was in this way draining in England was carried on for generations; even sod in grass lands was often used in constructing drains with great advantage. Such materials, (with the exception perhaps of sod, will be found sufficient in this country, for a beginning, and when no thorough system can be carrried out for want of means, or of the necessary preliminary preparations to which we have already adverted. In case of water being so abun-

dant that a conduit is necessary, a few boards can be nailed together, so as to form an efficient and enduring drain. We have seen hundreds of miles of drains in the old country, before the introduction of tiles, made from 30 to 36 inches deep in stiff clays, and filled at the bottom with heath or brush, and even with twisted ropes of straw, that have been in effectual operation, even on arable lands, after 15 or 20 years. In such cases the drain was dug with sides at a uniform angle, having a breadth at the bottom of only 2 or 3 inches, and the clay rammed closely down on the material at the bottom. The brushwood in a few years would rot and disappear, but the aperture would remain, the clay arch gradually attaining sufficient strength to support itself. This method is only adapted to stiff clays. And in this country such drains must be sufficiently deep, to be beyond the reach of frost, (say 3 feet) and their mouths should be formed for a few feet with stone or other enduring material, to prevent injury from frost.

We wish to be distinctly understood in the preceding remarks as having no wish or inclination to slight or undervalue the benefits of a thorough system of underdraining, carried out in a permanent manner. Much land in the neighbourhood of large populations, where pipes of 2 inches diameter can be obtained for six or eight dollars a thousand, might be profitably drained, after the methods now pursued in Europe. But even on such lands we should always bear in mind that it is only the better class of soils, such as are naturally rich, and only require to be laid dry, that will yield to any system of draining the largest amount of profit. In carrying out the English practice of draining in Canada, we must take special care so to modify it as to suit the particular wants and means of the great body of our farmers, and also the climate and soils of this country. Our opinion is that in general we require deeper drains and at greater and not uniform distances, than they do on the stiff English clays. If the preceding remarks should afford any useful suggestions, particularly to our remote and more needy farmers, and in any degree prevent them from neglecting draining altogether, because they are incapable, from want of means and the unsuitable state of their lands, of carrying out a more complete and expensive system, which can only be adapted to more favorable situations and circumstances, our object will have been accomplished.

COTGREAVE'S SUBSOIL PLOUGH.



This Plough combines the common plough, the trench plough, and the subsoil plough in *one implement*. It is capable of tilling the land to any required depth, requires but little skill in holding, and pulverises the soil at one operation in an efficient manner. The land may thus be prepared, with advantage to the succeeding crop, a considerable time before it is required for use. It may likewise be ploughed

advantageously in the wettest weather, and one ploughing is sufficient for each course of cropping. The three operations performed by this valuable implement, viz: ploughing, lifting, and subsoiling, leave, it is said by those who have carefully tested it, the land as if it had been dug or forked over, bringing it into the best possible condition for planting.

Among other advantages possessed by this plough, it admits of changes in its form by the ploughman, and under each change can be used separately, and can be easily regulated to do the following work, viz:—

1st. By raising the Trencher and Subsoiler *a*, and *b*, it will plough single furrows in the same manner as a common plough.

2nd. By lowering the Trencher *a*, it will skim and trench.

3rd. By raising the Trencher *a*, and lowering the subsoiler *b*, it will skim and subsoil.

4th. By again lowering the Trencher *a*, the three operations may be preformed at the same time.

The Guide *c*, is for regulating the depth of ploughing, &c.; it is provided with two revolving discs, which act as coulters. The Wheel *d*, is for regulating the width of furrow.

This novel and useful implement is manufactured by *Ransomes & Sims* of Ipswich, England, and has obtained medals at several of the Royal Agricultural Society's Shows. The price is £10, which must be considered very moderate for a well made implement combining the functions of three; thus effecting a large pecuniary saving in the farmer's first capital. The combining of different functions in one implement, when it can be done efficiently, as in the present instance, must be hailed as a great and most desirable achievement in agricultural mechanics.

IMPROVED WROUGHT IRON PLOUGH.

This cut represents a very strong, simple, and effective plough, manufactured by *Ransomes & Sims*, of England, an extensive and old established firm, of world-renowned reputation. It is specially adapted for breaking up ground recently cleared for cultivation, where a strong, rough, and ready implement is necessary. It has been

subjected to the severest tests, and is considered one of the strongest ploughs yet introduced. For ordinary ploughing two horses are sufficient, and when the land is rough and full of roots, it is of sufficient strength for four horses. It is fitted with a strong wrought-iron lever neck, by which the share can be adjusted so as to give any required pitch as the point wears, or according to the state of the land. This implement would be admirably adapted to our rough lands in Canada; but where the stumps are very thick, the length of the stilts would in one respect be a drawback, while in all others it would be advantageous. As a swing plough, fitted with steel share, it sells in England for five guineas, and for an additional six shillings it can be fitted with a head wheel.

IMPROVED TWO HORSE PLOUGH.

This is also another of *Ransomes & Sims'* improved ploughs, adapted for use on any description of land. The greatest care has been exercised in combining in this implement, as far as practicable, the best points in the manufacturers' other ploughs. Its draught is exceedingly light, while the superior form of mould-board renders it adapted for most descriptions of soil. The share is fixed to a lever neck, which gives it more or less pitch as the share wears, or according to the state of the land. This plough can also be fitted with a skim-coulter, or miniature mould board and share, preceding the ordinary coulter, and pares grass and weeds on the surface, which, falling to the bottom of the next furrow slice, are completely buried, and decomposing, form a means of enriching the land. The wheels are made on a new principle, with a recepticle in the nave for containing grease. The wheels are new in design, and are fastened upon the beam, thus dispensing with the old sliding axle. The price fitted as a swing plough is £3 16s. 6d.; with one wheel, £4 2s. 6d.; with two wheels, £4 12s. 6d.

We observe that this wealthy and respectable firm received prizes and commendations for their productions of the Bath and West of England Society as far back as the year 1807; and to the end of the year 1858, they had received from the Royal Agricultural Society of England, and the Royal Agricultural Society of Ireland chiefly, 64 money prizes; 18 gold medals, 38 silver medals; 10 bronze medals; besides the most distinguished honors, in the shape of special medals and diplomas from the exhibitions of leading European nations. The price of English Implements generally may seem high; but it should be remembered that they are made of the best qualities of wrought iron, in the most substantial and workmanlike manner, possessing the qualities of strength and durability in the highest degree.

OUR CORRESPONDENCE.

We are delighted to find our letters from correspondents increasing. One of the greatest difficulties this journal has had to contend with heretofore has been, that the farmers of the country could not be induced to write short letters for its pages on any subject of interest which came under their observation, and thus give it a more practical and popular character. In the adjoining States the difficulty of the editors of some of the agricultural journals is, not to obtain contributions, but to *select* from the superabundant quantity that they receive, and some of those papers are almost entirely made up of contributions of this character. Whereas in this country, although, time after time, we might urge our subscribers to favor us with some of the results of their experience, no matter in how few words, they were so slow to respond to our wishes, that if we could get at the rate of about one letter in six months, we felt extremely grateful for the favor. It is not that the farmers of Canada have not the ability to put their thoughts upon paper, for hundreds of them are able to do it well. It is that they do not feel sufficiently that their observations may be of value to the public, and that they themselves would find a pleasure in communicating their ideas to others. It is only to make a commencement that is necessary; after that the keeping up the habit would be easy enough. And even if a farmer is not able to express himself in very correct language, or very polished style, that is of no consequence. We do not want elaborately written, or long scientific articles. We want simply the everyday observations of practical farmers and farmers' wives, or farmers' sons and daughters, on any subject that may interest them, whether the communication of a fact, or an enquiry for information, in plain, familiar language that every one can understand. And no matter how short the communications may be, or how many of them, they will be all gladly received.

We are much gratified, however, as we commenced these remarks with intending to say, that we have to note a great improvement in the respect under consideration since the commencement of the present volume. We believe that we have already, since the 1st January, received a greater number of communications for publication, than for the whole of the past two years. We hope that our friends who have commenced so well will persevere, and that many others will lend their aid in the work. We must acknowledge that one or two of our correspondents in the present number pay us some rather left-handed compliments, but we do not on that account decline publishing their communications. We are very glad to receive them, not only for their own value, but also because we are anxious by every means to enlist the interest of agriculturists throughout the country, in the contents of our journal. And we are also willing to show that, with the aid we hope to obtain from our friends, we have no fear of any comparisons which may be made with any other publication of the kind whatever. We conclude these remarks by again urging all of our readers who are interested in the diffusion of agricultural intelligence, to let us hear from them as often as they can.

THE BOARDS OF AGRICULTURE.

We copy the following official notice from the *Canada Gazette* of 18th Feb.:

Bureau of Agriculture and Statistics,
February 17, 1860.

The following have been elected Members of the Boards of Agriculture for Upper and Lower Canada, for the year 1860, under the 12th sec. 16 Vict. cap. 11:

UPPER CANADA.

R. L. Denison, Esquire,
E. W. Thomson, "
H. Ruttan, "
Hon. George Alexander.

LOWER CANADA.

B. Pomroy, Esquire,
J. C. Taché, "
J. O. A. Turgeon, "
E. O. Casgrain, "

WILLIAM HUTTON,
Secretary.

Correspondence.

CULTURE OF CARROTS.

To the Editor of the Agriculturist.

ST. CATHARINES, Feb. 9th 1860.

SIR,—Through your very excellent paper, I wish to get information on a subject that many of your readers, as well as myself, are deeply interested in. Eight years ago, I sowed a piece of ground with carrot seed, the ground having been well manured the year before. I gathered from that piece of ground at the rate of 1000 bushels per acre. I have sowed with carrot seed the same piece of land regularly for eight years, after manuring lightly annually, and every year I have found a decrease in the crop, and the last year, on two acres of land, instead of having 2000 bushels of carrots, according to the proportion I had eight years ago, I only had 750 bushels. Now, I am well convinced from the foregoing, that the carrot has extracted from the soil, some ingredient that is necessary for the production of that root, and I have no doubt, whatever, there is manure of some kind, which by applying to the soil, would render that equally produtive for the carrot, as it was eight years ago.—Probably some of your numerous readers could give some information on this subject, which I think is a very important one.

Yours truly,
JOHN GIBSON.

[We shall be glad to hear from any of our readers, with reference to the above enquiry, and to receive similar statements of results of particular modes of cropping, whether of grain or roots, that have come within their observation or experience.—Our correspondent says that he manured lightly every year, but from the progressive diminution of the crop, it is evident that he failed to restore to the soil, in their due proportions, what his repeated crops had taken out of it. We would suggest the desireableness of growing carrots, or any other crop, less frequently on the same soil. And as carrots, and roots generally, require the land to be well and deeply cultivated, as well as manured, it would be far more advantageous to bring fresh land under this kind of tillage as frequently as possible; thereby obtaining a two-fold advantage; a larger crop annually, and the mechanical as well chemical improvement of a much greater area of the farm. This mode would pay better in the long run than to incur the risk and expense of getting specific manures; the action of which is not often fully understood, and is frequently more or less uncertain. Carrots require not only a rich and deeply cultivated soil, of a lightish character, but it is often injurious to the healthy growth of the roots to manure with a large quantity of partially decomposed substances, just previous to sowing; thereby causing them to be-what come is called forked, and less nutritious. Better take carrots after a former crop of a different kind, that had been well manured or to use such substances as farm yard dung, that have become thoroughly decomposed, so that they will perfectly incorporate or mix with the soil.—EDS.]

PROSPECTS OF THE COUNTRY—FARM IMPROVEMENTS, THE "AGRICULTURIST," &c.

To the Editor of the Agriculturist.

SIR,—As an agriculturist I am deeply interested in the progress and prosperity of farmers in Canada, and I hope to see the day when Canadian farming will be an honor to the noble country in which we live, and a pattern worthy of imitation by agriculturists generally over the entire continent.

It is obvious to every person, travelling in almost any part of Western Canada,

that the late financial crisis was a blessing to the country, and is now working beneficially, to the farming community especially. During that unparalleled season of good crops and famine prices, men became intoxicated with success; their ambition knew no bounds. Every man who could raise twenty dollars, or could get credit at all—and who couldn't then?—must speculate in some way. Among farmers there was a land mania. Land, more land, was their maxim, and no matter what the price. If they had to give four times its value, and hire money at 25 per cent. to meet their payments, it was done, without reflection as to consequences. We know the result. Markets fell as suddenly as they rose, crops failed, and thousands were ruined, while but few were permanently benefitted. Those who were content with one farm, and were not affected with the speculative fever, are now prospering, and many of them on the road to comfort and opulence.

Notwithstanding the gloomy forebodings of a few discontented persons about the "awful state of the country," and the "deplorable condition of the funds," Canada never had a better prospect before it than at present. Farmers are living within their means; and those who incurred debts during the good (?) times are fast freeing themselves therefrom. Piles of lumber and shingles; large quantities of hewn timber, and, not unfrequently, stacks of bricks and heaps of stones, are drawn together, ready for building operations during the next summer. This is the present state of things all over the country; and surely there is nothing discouraging in this?

It is also pleasing to know that the morbid desire for extension of surface is fast giving way to the more profitable and satisfactory mode of extension of soil, viz., by underdraining and subsoiling. More attention is given to the collecting and preserving the fertilizing elements contained in manures; a more systematic rotation of crops is adopted; naked summer fallows give place to root and green crops; more attention is paid to gardens and orchards; homesteads are rendered more attractive by planting ornamental trees, &c.; in fact farming is beginning to assume its proper position, and is now looked upon as a science, worthy the attention of the intellectual student.

You, Mr. Editor, have a great responsibility resting on you. The *Agriculturist* being the only agricultural paper in Western Canada, it should "lift its banner on high," and take a noble stand; endeavour to create a national literature worthy of the country and the people it represents; depend more upon home productions than foreign. There is sufficient talent among the farmers of Canada to make the *Agriculturist* one of the best papers on the continent; it only requires to be brought out in some way.

By reference to the columns of the *Genesee Farmer* you will find, that *eight* of the twenty-one premiums given to agents, were taken by residents in Canada West; and I have no doubt that the circulation of that paper is larger here than in any one State in the Union.

You will, also, find that there is about the same proportion of correspondents in Canada West. In my opinion the secret of their success lies in this general correspondence from all parts of the Northern States and Canada. Farmers have adopted it as their own paper; where they can freely communicate their thoughts and experience —it may be—in a home-spun way; still it is comprehensible and practicable. Now, I see no reason why this correspondence may not be diverted, or brought to contribute to the success of *our own Canadian paper*. Surely there ought to be sufficient patriotism among farmers to prefer a provincial before a foreign production, if the article is equally as good. There is no reason why any present subscriber to the *Genesee Farmer* should give it up when 37½ cents will pay for so much valuable reading—but I do think that we ought to do as much for the *Agriculturist*, and assist the managers to give it a national standing and render it not only interesting and profitable, but also a high authority on agricultural matters generally.

There is no reason why its circulation should not reach to twenty thousand copies. Its price is almost nothing; and it has the advantage of being free of postage.

I may be presuming too much, Mr Editor, but your cordial invitation in the last number has induced me to do what I before hesitated at doing. With your permission, I would now urge upon brother farmers to take this matter up, and see what will be the result by the end of the present year.

Yours, &c.,

SIGMA.

East Zorra, Feb. 14th, 1860.

MILLET.

To the Editor of the Agriculturist.

MORPETH Feb. 13th 1860.

DEAR SIR,—In the last issue of your paper, I find an article on the Cultivation of millet, from Mr. John Gibson; his impression as regards the quantity of seed per acre, coincides with mine, that eight quarts is not sufficient, I should prefer 12 quarts for broad-cast sowing, which I deem best for soiling purposes; but for raising seed, the plan of drilling proposed by him would be the best. His ground was the best that could be selected, for unless the land is rich, the crop will be very small, loomy soil is more retentive of moisture, and as the seed of millet is very small, and the plant consequently so when it comes up, it needs the most favourable circumstances to keep ahead of the weeds. I think the beginning of June will be found the best time for sowing. In putting in this as well as many other seeds, the best time for putting in the ground is when the plant can go forward to perfection, with the least or fewest drawbacks when small. Sowing at this time will prevent the ravages of birds as well as cause it to fill better. I would advise sowing on summer fallows, and, when ready to prepare for wheat, turn in the cattle and let them eat it off. Although I do not recollect seeing anything regarding the chemical change a plant undergoes on being cut, still I would hazard the opinion that millet, cut before it had ripened its seed, or nearly so, would be found wanting in some of those qualities so much relished by cattle; if allowed to ripen, the benefit is counterbalanced by the trouble of getting the seed out of the soil, as it sheds very easily when ripe, also preventing it being carried about the farm, when fed in a raw state. The quantity required for seed, could be more carefully handled and would not entail so much trouble.

Yours truly,

J. B. CORNWALL.

THE "AGRICULTURIST," NEW FORM—TREATMENT OF HEAVES IN HORSES, &c.

To the Editor of the Agriculturist.

DEAR SIR,—I am pleased to see the change you have made in the *Agriculturist*, both as it respects its matter and its semi-monthly form. It is now I presume unequalled in point of cheapness, and I hope it will be surpassed by none in interest and intrinsic value.

Brother Farmers, this is our own paper, and it will be just what we make it; therefore we must all take it; yes, every farmer must have it, every one must write, or cause to be written, at least one article in the year for its columns, and use the *Agriculturist* as the medium of all our scientific and practical knowledge that we may have to make known. If we do this it will become one of the most interesting papers that will or can enter our homes.

TO CURE THE HEAVES IN HORSES.—Take two pounds of nitre or saltpetre and quarter of a pound of tartar emetic; pulverize and mix. Give a teaspoonful once a day for four days; then stop three days, and begin as before; continue this for three or four weeks; it will help any horse, and cure many: the powder may be given in the horse's food.

Another cure for the same disease.—Kill a common red squirrel and chop it up fine, skin and bones and all; mix in the horse's food, and it is said to make a perfect cure.

Another cure for the same disease, given by Mr. P., of Richmond Hill, C. W., and published in the last number of the *Genesee Farmer*.—Take a tablespoonful of ginger and the same quantity of shorts, and as much tar as it will require to make a ball when well mixed; give a ball once a day. Mr. P. says the very worst of cases are cured by this remedy, and that the cure is permanent. If this be so, then all farmers ought to know it.

I would add further respecting horses. A short time since a friend presented me with a receipt for the management and taming of wild colts, as follows:—Lift one of the fore feet and fasten tight by the aid of strap or rope, so as to prevent its putting its foot to the ground; when the foot is thus made secure, drive the animal around until compelled to fall; then endeavor to keep it down; while thus lying, apply a little of the oil of rhodium or oil of cumin to the tongue of the animal, as also a little on your hands; you can then allow it to arise, and it will feel conquered, and while afraid will still be fond of the smell of the oil, and will therefore like to have you about it.

CHEAP FOOD FOR COWS.—Cut your straw; take a quart of flaxseed and boil in four pails of water for two hours; throw in a handful of salt; now wet your cut straw with this tea, and your cows will do well,

and eat their food up clean; you may feed your horses in the same way, only make the feed stronger, by adding more seed or cut hay or oat sheaves. Flaxseed can be bought for from one to two dollars per bushel, and as it is easily raised all farmers may have it by taking a little trouble.

WHO HAS THE BEST COW FOR BUTTER?—Let us hear from such as have extra good ones, and tell us of what breed they are. I have a native cow, which calved on the 25th of November last; we raised the calf, and for the first two weeks we gave it new milk altogether; we then began to mix skim milk with it, and soon fed it altogether with skim milk. My wife began to save the milk for use on the 29th of November and up to the last of January, two months, she made 70 lbs of butter and sold $1 62½ worth of new milk, besides using cream and milk for the table, all from this one cow. Who can beat it?

S. KING,
Ryckman's Corners, C. W.

THE "AGRICULTURIST"—PRIZE REPORTS, &c.

To the Editor of the Agriculturist.

Dear Sir,—I was really pleased the other day, to receive some numbers of the "*Agriculturist*" which from sheer carelessness on my own part I had not received for '59.

While opening the package in the post-office, I was asked, why do you not take the "*Albany Cultivator*" instead? I replied that I considered it the duty of Canadian farmers to support Canadian papers, but I was told the American one was decidedly superior. Here then is an argument, and a strong one, that we should support our own paper by our subscriptions, and thus give its conductors the nececessary *means*, not only to compare favourably—but if possible to excel even "the *Cultivator*."

I fear it is too common a query—why not take the *Cultivator*? but when placed in this light I feel sure our farmers have intelligence enough to acknowledge the force of the argument—and if even a very little interest were taken in the matter, by the officers of the various Agricultural Societies throughout the country, you would speedily be refreshed, physically and mentally—or in other words, you would have an endless list of subscribers, and lots of contributors.

I admire your plan of eliciting reports of every country in the land *upon principle*; and practically, because I have a secret purpose of pocketing your munificent prize of $30.

It is very desirable that these reports should be full, well digested, and reliable—to attain these, time is indispensable.—Might I ask your good offices—in my own behalf as well as for all similar aspirants—to secure us another month's grace, say till the first of May? We practical men, are busy in March—April being comparatively a leisure month, we could more easily devote to this work. Give us time for the work and we will not push you for the pay.

Might I also suggest that it would be advisable to have them transmitted to the board anonymously—designated by mottoes—as is usual with prize essays? It is more comfortable for the judge; and unsuccessful candidates will be more readily consigned to oblivion—at the same time in such a genteel way that they may not be deterred from making the attempt at some future time.

Yours,
EIN LAND BAUER.

[Our correspondent, as well as others who may desire information on the same point, will please observe that the act of Parliament, which we have not power to alter, prescribes, clause 42, that the Reports shall be sent in to the Board of Agriculture, on or before the 1st day of April;—and the secretary of the Board would desire to receive them, if possible, even some time prior to the latest date allowed. In regard to the reports being anonymous, if our correspondent will refer to the Nos. of the *Agriculturist* in which the notice regarding the prizes offered for reports appeared, he will find that they are to be the reports of the societies, adopted at the annual meetings, and it is not therefore necessary that they should be transmitted as the work of any particular individual. Neither is it absolutely necessary that the report should be actually written by any officer of the society, but it must be adopted by the society, and certified as a true copy of the annual report by the President or Secretary for the time being. The merely formal parts, such as the lists of mem-

bers, premiums paid, &c, which require little labour or time in preparation, must of course be submitted and adopted at the annual meeting, and would not require, or admit of, if correct, any change. But the portion referred to in the notice in the *Agriculturist* as part 3, and prescribed by the act in the words "together with such remarks and suggestions upon the Agriculture and Horticulture of the County (or township), and arts and manufactures therein, as the Directors shall be enabled to offer," necessarily admits of considerable latitude or discretion as to the matter it shall contain, on the part of the writer or of the society adopting it. It was therefore conceived that, in cases where there had not been sufficient time to draw up such a report as the society or the person writing it would desire to forward, it would not be contrary to the spirit of the act, for it to be adopted *pro forma* at the annual meeting, and afterwards amended; always provided, however, that the amendments should receive the sanction of the Directors, and that the report should be duly certified, and forwarded through the proper channel. But the amendment of the report could not be allowed in any case to prevent it being forwarded to the Board of Agriculture at the time required by the law. We are glad to find the subject of the reports attracting attention, and shall be most happy to publish that from our correspondent as receiving the highest prize,—*if he earns it.*—EDS.]

THE CULTIVATION OF FLAX.

Continued from page 77.

The handfuls of flax when pulled should be laid by themselves on the ground, or two or three diagonally across each other, taking care to have the but-ends even.—Three methods may now be adopted in its future treatment.

1st—It may be rippled immediately after pulling, and steeped at once.

2nd—It may be dried in stooks of a peculiar structure, the seeds beaten off, and the stems steeped shortly afterwards.

3rd—It may be dried too, stored, seed beaten off in winter, and the flax steeped in the following summer.

The first method is that most generally followed in this country—at all events it is the mode which I have experienced in the province of *Ulster*, where there are some of the most enterprising flax growers in Ireland. The rippling process means the separation of the seed-bolls from the stems by drawing them quickly through a machine made up of a row of iron pins about eighteen inches long, half an inch square, a quarter of an inch apart from each other at their base, and tapering nicely to within half an inch asunder at the tops, which are sharpened. When the ripping is going on a winnowing sheet must be placed under the apparatus so as to catch the bolls as they are rippled off. The sheaves are left on the right hand side of every rippler, he taking up a handful and holding it with one hand while with the other he spreads out the top so as to present a broad surface to the pins. If the bolls are thick two draws are necessary through the machine. Four men with two rippling apparatuses will take the seed off more than an acre in the day. The bolls are riddled to separate the long stalks that may be among them, and then put through fanners to blow of the leaves. If the weather be dry they should be spread on the winnowing sheet with the sun, and turned over two or three times a day. When dry or nearly so they should be removed to a corn kiln, and by a gentle heat they will be well finished, so as to keep dry for a length of time without fermenting.

If rippling has not been carried on as described it may when dry in the stooks be carried home on carts, and beetled, after which it may be steeped. This process of beetling is usually performed by what is generally called a beetle, which consists of a block of wood about ten inches long and and three or four inches square, into which a handle is inserted, more generally the handle is a prolongation of the head made small for the hand to hold. By such an implement the seed can be beaten out.

When the flax is steeped in the green state, as I invariably have seen it, the seed is separated by the ripplers. In the former case of beetling we do not require to put the bolls on a kiln at all, for in this case it is dry enough. We merely require to winnow like grain to free it from the chaff.

Steeping is the next point to be taken into consideration, no matter which of the aforementioned methods is practised. This process requires the greatest skill and attention on the part of the manager. The water best adapted to steeping flax is river or running water. If we resort to spring, or water containing minerals, the dam should be filled for a considerable time previous to putting in the flax; but if river water is used it should not be in the pond before use more than twenty-four hours.

Perhaps it may not be out of place to describe what the use of steeping is. Well, it is simply this:—A process by which the vegetable matter connecting the stem and fibre is decomposed by the immersion of it in water, and after which these portions are readily separated. The value of the fibre depends very much upon the care bestowed on the due performance of this process. The flax-dam should be made from four to six yards long, two to four yards broad, and three and-a-half to four feet deep. If a small stream be allowed to run through the dam constantly it is found to very much improve the fibre in color.

On putting in the flax to the dam it should be placed loosely in it in regular layers, sloping gently across the breadth of the pond or dam, with the root end underneath. After thus placing the flax in the dam we should put old scraws or sods with stones, &c., over these, so as to immerse it about four or six inches under the surface-water. It should be kept from the putting in till the taking out at this depth below the surface, but at the same time not to put on as much weight as would make the flax touch the bottom, which should not occur.

The time it takes for steeping varies according to the temperature of the weather and nature of the water, say from seven to fourteen days, or even more, if circumstances be not favorable. Every grower should learn to know how to test when the flax is steeped enough, as a few hours extra would materially injure the fibre. The best test may be stated thus:—Take a few stalks and break them at two places, three inches apart, near the middle of the stem, and if the three inches so broken separates easily when drawn downwards, without tearing or injuring the fibre, we may rely on its being steeped well. This test should be repeated twice a-day after fermentation subsides, for the change afterwards is very rapid. If we find, however, after lifting it out of the steep, that we did not allow it to remain long enough in, we may in a great measure rectify this by allowing it to remain a little longer on the grass. When raising the flax out of the pond let it be done by men standing in the water, who hand it up to others ready to receive it on the bank. Care should be taken not to make very large heaps on the bank, as it might heat. It ought to remain on dreep for at least twelve or fourteen hours before carting off to the place for spreading, a process presently to be noticed.

Spreading should be performed on a pasture field having a good clean sole; if any weeds, &c., be on it they should be mown down clean with the scythe. The flax is evenly spread on the grass by women or girls with the greatest facility. If the weather be rainy when spreading, or if it occurs immediately after so much the better, so as they be good sun-showers, as they are sometimes called. The flax should be turned over twice or thrice carefully with the hand, or little rods made for the purpose, in order to have it of a uniform color. Six or eight days may suffice on the spread if the weather be sunny and showery at intervals, but if dry it often goes as long as twelve days. A good test of its being ready to lift off the spread is to take a few stalks and rub with the hands from top to bottom, and if the wood breaks easily, and separates from the fibre, leaving it in good order without tearing, we may lift with safety. Also, when the reeds are raising themselves from the ground in the form of a bow, and a string running from one end to the other.

Perhaps the best way is to take a bundle in and scutch it on the stock. When lifting it is well to remark to keep the flax even at the ends, in order to avoid a loss in scutching, &c.

If not perfectly dry the lifters set it up in caps for a few hours before tied into sheaves or bundles. During all these operations the different qualities should be kept separate, as a mixture would lessen its value.

Sometimes drying the flax over or before a fire is practised, which is always most injurious. If properly steeped and grassed such drying is not only unnecessary but pernicious; exposure to a good sun is quite adequate for making it ready to be scutched, &c. I have seen "kilns," as they are called, constructed for the purpose of drying flax; and actually it is oftentimes absolutely burned, it being damp when put before the fire, and consequently the oily and rich appearance of the fibre is totally disfigured. This is a point which all parties concerned in the growth of this invaluable

production should pay the strictest attention to, as much injury has resulted from the drying of damp flax over or opposite fires.

We are now ready to send it to the mill to be scutched, &c., if not hand-scutched. The trouble which flax entails in the various processes which it has to undergo before it is ready for market is often objected to. This, however, will not be considered of weight by the careful and enterprising, when they find that their profits increase in proportion to the care and skill exerted in the different processes of management. It is by manual labour that nearly all the flax in Belgium, Holland, &c., is dressed. In Ireland a considerable quantity is also prepared in this way; formerly at least, it was the case, but now a-days, since machinery has become so extensively available, the greater proportion is scutched by mills. But in case of a small farmer, manual labor is preferable, being cheaper; but to the larger farmer, with a considerable crop and few labourers, it is tedious and expensive, and mill-scutching is far in the way preferable.

The comparative merits of the two modes of scutching must be regulated according to circumstances. When labour is plenty, and a man wishes to employ those who would otherwise, perhaps, be a burden to the parish, hand-scutching is undoubtedly to be preferred. Women and young lads can perform hand-scutching as well and much better, in fact, than men, and the farmer can regulate the period for dressing his flax according to the time when he has least out-door work to perform. In like manner, it is a most consoling employment to the cottier's family, when they have no other occupation. But I say when labour is comparatively scarce and the crops large, hand-scutching is much too longsome, and the mill is to be employed.

Flax, when scutched, should be tied up in bundles, say of a stone or two each, and stored in a cool place, a ground floor being more suitable than a dry airy loft. No damp should be allowed to effect it either; but it keeps better on the floor, for it gets dry and brittle, and does not appear so well when stored on dry lofts. It is vastly improved when it has been a few weeks stored—far better, in fact, than immediatly after scutching.

Belfast is the greatest flax market in Ireland, Leeds in England, and Dundee in Scotland. But in all the flax-growing districts in Ireland there are minor flax markets held on stated days, at which agents attend, and the farmer can bring his flax in carts to the nearest flax market, where he gets soon disposed of it, and, if all points have been carefully attended to, with ample profit to himself.

A vast deal more could have been said on this subject, as very many important items have been left out, as, for instance, the value of its seed for young stock, &c., as also the mode of preserving it, which has been slightly hinted at, and other points of no less import, which would require months to elucidate. But none of those points of any consequence with regard to its cultivation have been omitted.

January 10th, 1860.

EFFECT OF MANURES ON CROPS.

BY J. C. NESBIT, LONDON, ENGLAND.

I have now to speak on another point, namely, the effect of manures on the production of plants. Before doing that, let me observe that what we call the roots of turnips and mangel wurzel are not, botanically speaking, roots, but bulbous formations, intended to accumulate the necessary materials for the production of seed in a subsequent year. Now as regards the growth of plants, there is one thing ought to be borne in mind by those who are practically engaged in the work, namely, that you may over-produce a thing, or stimulate one portion of a plant to the detriment of another portion. You know that if you sow wheat upon a dunghill you will get straw, and no grain. The reason of this is obvious; and it applies not merely to wheat, but to a great many other plants to which it is not generally supposed to apply: it is, that the action of too large an amount of stimulating manure at an early period is, to cause the formation of large cellular tissues, by which the power of the manure is thrown too much into the formation or production of the first portion of the plants; and when you want afterwards to fill the cells with the materials of nutrition, it turns out that you have nothing to follow on with. In the case of turnips the result is simply this, that you have a large developement of leaf, and too great an extension of the cellular tissues of the turnips, which cells do not subsequently get filled up with the proper amount of starch and other nutritious snbstances. In the case of wheat the result is similar. You may stimulate wheat, or barley, or oats to such an extent that the product will be all stalk, there being no power to produce the ear of corn; or if the ear be produced, it

will contain no seed, or seed of inferior quality. It is for this reason—the question being one to which my attention has been directed for some years—that I have recommended the use of salt and lime, and other substances of the same kind, which have the power of arresting the too-early growth of wheat or other straws when your object is to obtain the ear. I think this cannot be repeated too often, for I am sorry to say that, notwithstanding all that has been said on the subject, the facts do not seem to be yet sufficiently appreciated by those who are practically engaged in agriculture. There are only a certain number of weeks after the first germination of the wheat occurs, before the ear is formed. Now if you can stop the too great growth of the straw in the early period before the formation of the ear, the power of the manures which you have put on the land will be thrown directly on the second period of the life of the plant, the seed will be greater in quantity, and the sample of corn undoubtedly better. I cannot cite a better illustration of this than that which is afforded by the experience of the last year, when we had, as a general rule, too much straw, and too little corn. If you do what I have referred to, in any single case, when you ultimately want the last product of the plant, you will find that you have done wrong. On the other hand if you require the mere grass or hay, you cannot manure too highly with ammonical and phosphatical matters in order to obtain the largest quantity of produce. In all cases in which you want the early product, the grass or hay, you cannot do better than apply ammonical and soluble phosphatical manures to the greatest extent in your power.

Agricultural Intelligence.

Land Drainage.—A public meeting was held in the Town Hall at Windsor, on the 15th February, for the purpose of discussing the question of petitioning Parliament for a Drainage Act, similar to that passed in Great Britain some years ago. The persons present did not agree in their opinions as to the advantages of a Provincial Act, but unanimously adopted the following resolution in reference to drainage in Essex:—

"That our respective legislators and representatives, Colonel Prince and Mr. McLeod, be requested to exert their influence with the Government, to grant aid from the public Treasury for the purpose of drainage of wet lands in the County of Essex."

Flax Growing in Waterloo.—The enterprising firm of Messrs. Perine, Brothers, Conestoga, have exported by railway to the United States about 60 tons of flax and tow grown in this county, being nearly double the amount exported last year. This fact affords the best proof that can be given of the rapid increase that is being made in the culture of this article. We are also glad to learn that the farmers who have tried the culture of flax, as an experiment, are well satisfied with the remuneration which they have received for their labor. We believe that its culture would, on the whole, prove more remunerative than that of wheat, while the risk of growing the former, as regards a good crop, would be by 25 per cent. less than the latter. These facts warrant us in stating that the culture of flax in this county, for the future, will be generally engaged in.—*Berlin Telegraph.*

☞The hay crop of Maine averages 1,000,000 tons, worth $10,000,000 per annum, and the amount of pasturage is as much more. Grass is and always must be the staple crop of Maine. Our long winters do it good, and not harm.—*Maine Farmer.*

Horticultural.

HINTS FOR MARCH.

"If the sun appear dim, surrounded with
And his disk ill-defined, and faded his rays,
If white at his setting, of power if shorn,
The signs are all certain, there 'll soon be a storm."

This month affords abundance of employment to the industrious gardener. The general work of the kitchen garden will be materially forwarded by drawing in a full supply of well-rotted manure, and distributing it in heaps ready to spread when the frost is out of the ground. If hot beds have been prepared according to directions given last month, they will now require constant attention to giving them plenty of *air* during the day, and covering them well up in cold nights to protect the tender plants.

To raise early cauliflower and cabbage, the seed might be sown in cold frames about the middle of the month, and if properly looked after, the plants will be ready to plant out the first week in May. Tomato and celery seed should be sown on a hot bed to bring the plants forward in time for planting out about the middle of May. Our climate will hardly admit of seed being sown in the open ground during this month; we shall therefore reserve general directions for sowing seeds till April.

The following is from Buist's *Family Kitchen Gardener*:—

Forcing Cucumbers,—The first requisite is to obtain four feet square of warm stable manure; turn it up into a heap for eight or ten days, to allow the rank vapour to pass off, when it may be placed into any form to suit a sash. The general size is four by six feet high at the back, sloping to two and a half or three feet at front. Either make or have made a frame of boards, at least fifteen inches deep, three feet wide, and five feet long, or the full size of the sash. Let the dung-bed be a foot all round larger than the frame. Should heavy rain or snow fall, or it be a severe frost, the manure should be protected with a covering of straw. Care, however, should always be taken that the reduction of the heat in the dung is not carried too far, before making up the bed, as, when that is the case, too little heat will afterwards be produced, and the young plants will be of a yellow colour instead of a rich green. The bed should be built square up, and regularly beaten down with the fork. When finished, put on the frame and sash; keep it close for a day or two, to draw up the heat; air should then be admitted for a few days, during the day, by tilting up the sash at the back a few inches, to allow the steam to pass off, which it generally does in four or five days or less. Supposing the bed now in order, put in a quantity (three barrow-loads) of light, rich loam; none better than that from the surface of the woods. In two or three days the earth will be sufficiently warm for sowing the seeds. If the plants are to be removed into other frames, sow them in pots; if not to be removed, sow them in a hill made in the centre of the bed, by placing one barrow-full more of earth in it. Sow a few dozen seeds to meet contingencies, or any extra supply, in pots, in case of damping off—which frequently happened in cloudy Winter weather. Cover the sash at night with straw mats, or any similar protection, and surround the bed with litter or boards to keep the piercing winds from carrying off the heat. The seed should be two or three years old; (it is better than new seed, which goes more to vine than fruit.) It will be up in twenty-four hours, and in two or three days will grow into strong plants. During their growth, admit fresh air every day at the back; give the young plants as much light as possible; when they have attained their third rough leaf, nip the point off the vine, to cause it to branch. If the soil or the plants appear to be dry, give them water in the forenoon, which has been kept in the bed during the previous night, that it may be in a warm state. The plants succeed best when they are transplanted, and plant them deep enough for the earth to reach to their seed-leaves. As the plants grow roots will protrude from their stems, to which earth may be drawn. The roots will also appear through the hill, to which a farther supply of fresh soil may he added. When the plants have grown and the sun is very warm, they may flag or droop; if so, sprinkle a few straws or a very thin mat on the glass, right over them, about mid-day; but it is best to grow them without this precaution; and it is unnecessary when they have sufficient moisture, heat and depth of soil. The requisite temperature is from 65° to 75°, and from 75° to 100° by day. Experience can manage these affairs with sight and feeling, but the untutored require the aid of a thermometer and a stick to poke into the dung-bed, to ascertain the internal heat of the material. When it begins to decline, give it a fresh lining of manure all around, of eighteen inches in thickness, and as high as to cover half of the frame. The vines, if well managed, will bloom within a month from the day of sowing. The male and female flowers are on the same plant, and art may render assistance, by taking the male blossom and putting its centre within the female, which is easily distinguished by having at its base a form of a cucumber, half an inch long. J. F.

Veterinary.

Keeping Horses' Feet and Legs in Order.—"If I were asked to account for my horses' legs and feet being in better order than those of my neighbours', I should attribute it to the four following

circumstances: First, that they are all shod with few nails, so placed in the shoe as to permit the foot to expand every time they move; second, that they all live in boxes, instead of stalls, and can move whenever they please; third, that they have two hours daily walking exercise when they are not at work, and fourth, that I have not a head-stall or rack-chain in my stall. These four circumstances comprehend the whole mystery of keeping horses' legs fine, and their feet in sound working condition up to a good old age." —*Miles.*

Miscellaneous.

Order of Rank among Furs.—A large proportion of the furs used in this country and elsewhere are cured and dressed in London; and although England does not use expensive furs, yet London is the greatest fur mart in the world. The ermine is considered the most precious, and next to that the Russian sable; but the real sables are rare, for, according to our latest Russian statistics, only 25,000 skins of this beautiful little animal were produced during an entire year in the Czar's empire. The prices paid for them are almost fabulous, a fine set being worth $2,000. The sable for lining of one of the Emperor's cloaks, exhibited at the World's Fair, in 1851, was valued at £1,000. Next to the sable in popularity and costliness, ranks the marten, or American sable—a fur rich and high-priced, yet so fashionable as to be almost universally sought for.

The Hudson Bay sables are next in value, and are almost as expensive as the Russian. Next is the mink, pre-eminent for beauty, wear and durability. It is not, perhaps, so delicate-looking as the stone-marten, or so artful-looking as the African monkey, or so captivating as the ermine; but is quiet and graceful, and more thrifty than them all. Besides the mink, the stone-marten, the fitch, the Siberian squirrel, and the Persian and Russian lamb, are in daily use. The skin of the black bear forms the most magnificent sleigh robe—a good turn-out of which, including robe and apron, costs upwards of $100.

The Canadian furs most esteemed in Europe, and of which they have no representatives, are the black fox and the silver fox. These are only found in the Hudson Bay territory, or on the North shore of the St. Lawrence. The raccoon and the muskrat are also confined exclusively to this continent. In England, valuable furs are but little worn—the climate not requiring the lengthened wear of furs at any one time. The muskrat and the rabbit, and the American hare, dyed, form, therefore, the bulk of the furs worn there. The value of those exported from the United States in 1857 was $1,116,041.—*New York Courier and Enquirer.*

In Turkey, it is a law that no male child born of any daughter of the sultan shall be allowed to live. This barbarous custom is still in full force at the Seraglio, and a son recently born to the sultana, the wife of Mahmond Pasha, was pitilessly strangled immediately after its birth.

A Publisher's Gift to his Native Place.—Mr. W. Chambers, of the old and well-known publishing firm of W. & R. Chambers, Edinburgh, has, at a cost of $100,000, purchased and presented to his native town of Peebles, Scotland, an ancient building in the High Street of the place, formerly known as Queensbury Lodge, and which he has transformed into an "Institution," comprising a reading-room and library, a gallery of arts, a general museum, a county museum, and a spacious hall for public assemblies. One year has been busily spent in this metamorphosis of the old Lodge; and at last, fully completed, the ceremony of presentation took place last month, in ceremonies of several days duration, and of a public and highly interesting character, comprising prayers and a sermon, music, instrumental and vocal, a procession, a public gathering when the presentation took place, a banquet and a ball. Over six hundred persons, comprising the residents of Peebles and its vicinity, and many distinguished persons from a distance, assisted in this unique celebration, many of Mr. Chambers's old friends, whom he had not seen for twenty years or more, came from distant places expressly to assist in the ceremonies.

At the public dinner, Mr. Chambers was toasted in the most flattering terms, and on rising was received with enthusiastic demonstrations of respect and attachment. In the course of his modest reply he made the following interesting remarks:—

"Ten years ago I came back to reside in my native county, after an absence of about forty years. I left in 1813, a poor lad, with my mother and father, and went to Edinburgh. I pursued a humble career for many years, unknown to fame, unknown almost to anybody; yet I felt within me a desire to persevere and to push forward, to the best of the ability which Providence had

conferred on me. I endured privations. I bore—what has been properly enjoined—the yoke in my youth. I was after a time successful. I never was, and never will pretend to say that I am, the originator of cheap literature. All I presume to claim is, that in the reign of William IV, about 1832, there was an extraordinary aptitude for the purchase and reading of cheap literature. Most of it was of a very poor an meagre kind—not of a quality which, I think, ought to have been addressed to intelligent readers. Having for some time accustomed myself to literary composition, I endeavored to turn the tide of popular taste, and get for it that material for which there was a craving, and in that attempt I was, as you are aware, eminently successful.

"*Chambers's Journal*, which was originated in the month of February, 1832, about six weeks in advance of the *Penny Magazine*, was received with a degree of acceptation which astonished me, and which astonished my friends and acquaintances. Assisted by my brother I entered on the career. With his graphic and elegant papers, that publication soon became more successful than I had ever any reason to expect. It went on and goes on now, with a degree of popularity which has astonished and surprised all who are connected with it. Having gained the public ear in 1832, it has not lost it in 1859. One thing led to another; other interprises were attempted, and which were also successful; and, at length, from the poor boy who left Peebles in December, 1813, I came back in 1849, the proprietor of an estate in Peebleshire."

The Telegraph Projects of the World.—There is no discovery or invention which has come so immediately and extensively into use as that of the magnetic telegraph. Every government seems to feel the necessity for it; and even in Japan it has been adopted as a useful agent for the government. Very soon the whole globe will be covered with telegraph wires, and every part of it be brought into closer connection and closer interests. Russia has determined to establish a line from St. Petersburg across Siberia to the river Amoor, and thence to Russian America, which will be but a short distance from our Pacific States. This will probably be the first reliable connection which will be made between the two continents. A project is already on foot for submarine cables from India to Australia, to be laid by the united actions of the governments of England and Holland. The English home government and the East India government bind themselves to connect the India peninsula with the island of Singapore; the Dutch government agrees to carry out the connection to the southeast point of the Island of Java, which belongs to Holland; and the Australian government will unite their continent to Java.—*Scientific American.*

The Climate and Resources of Morocco.—Morocco is called by the Arabs, "the land of the extreme west," from its position in Africa. Its territory is about 500 miles long by 375 miles wide, intersected from S. E. to N. W. by the chain of the Atlas mountains. The climate is very hot during the months of June, July, and August—the rainy season continues from September to April. Much of the year, however, the climate is pleasant and agreeable, and the winter is frequently interrupted by iuntervals of fine weather.—The soil of the country is fertile, and yields three crops in a year. Indeed, such is the productiveness of this empire, that if it were well governed, and proper encouragement given to agriculture and commerce, it could supply all Europe with wheat, barley, rice, and maize. In some portions, tobacco, cotton, saffron and sugar-cane are cultivated. Pastoral industry is most pursued however, the Berbers and Chelloks devoting themselves to it almost exclusively. According to the latest accounts, supplied by the European consulates, the live stock of the country comprises 500,000 camels and dromedaries; 400,000 horses; 2,000,000 mules and asses; 5,000,000 cattle; and 50,000,000 sheep and goats. These statistics, which are not far from the truth, show the resources of the country.

The piles under London Bridge have been driven 500 years, and on examining them in 1815, they were found to be little decayed. They are principally elm. Old Savoy Place, in the City of London, was built 650 years ago, and the wooden piles, consisting of oak, elm, beech, and chestnut, were found, upon recent examination, to be perfectly sound. Of the durability of timber in a wet state, the piles of the bridge built by the Emperor Trajan, over the Danube, afford a striking example. One of these piles was taken up, and found to be petrified to the depth of three-quarters of an inch, but the rest ot the wood was not different from its former state, though it had been driven 1600 years.

The Tea Plant in America.—The following notice from the Patent Office Department at Washington has been circulated throughout the Union:—"The tea plant in charge of this office will be ready for distribution in the course of a few weeks. Each plant, with the pot in which it is growing, will weigh about one and a half pounds, must be forwarded to its destination by express. It is supposed from the best information to be obtained, that the tea plant cannot be cultivated in the open air north of the northern boundaries of Tennessee and North of Carolina. Hence, they can only be raised in your State by being placed in heated conservatories, or greenhouses during the winter season. While, therefore, the larger portion of the plants will be sent to those States where it is believed they can be successfully cultivated in the open air, still a considerable number of them will be sent to other portions of the country, to be raised as matters of curiosity."

Poisoned Partridges.—The Springfield *Republican* says:—"Partridges are beautiful and delicious birds, and may be eaten with safety as long as their fall food lasts; but, when the severity of the winter comes on, they are driven to feed on the young buds of the maple and birch trees and the leaves of the laurel. It is probable that at this season of the year, there cannot be a partridge killed which has not eaten large quantities of the laurel leaf. This leaf is a virulent poison to the human system, though the partridge eats it with impunity to itself."

Walnut Lumber.—The Hamilton *Advertiser* relates as an instance of what a good sleighing season does for the back country, that a gentleman from the rear of Wardsville, county of Middlesex, was in that city a day or two since, and sold in one lot $9,000 worth of black walnut lumber, which had been got this winter. He says that speculators from the United States have been through the West, buying up all the walnut timber they could get, at good prices. Other large contracts for lumber have been recently made in Western Canada, which are being effected with all possible dispatch.

A tenement house to accommodate 5,000 people, with ample room for each family, is about to be built in New York.

January 1st, the spirit thermometer in St. Paul, Min., was 50 degrees below zero, the mercury being congealed.

Editorial Notices, &c.

Fourth Annual Report of the Maine Board of Agriculture, August, 1859.

We are indebted to S. L. Goodale, Esq., the able Secretary of the Board, for a copy of its Report for 1859. It is very neatly executed by the printers to the State, consisting of near 300 pages, with several illustrations on wood, and filled, as far as our yet limited opportunity of examining the volume goes, with much interesting and useful matter. Much of this is from the pen of the Secretary himself, and the volume consists of reports and correspondence, and tabular returns from the Agricultural Societies of the State. As Maine possesses a soil and climate analogous to large portions of the British Provinces, we shall look over this volume with care, and present our readers with the results.

Transactions of the Massachusetts Horticultural Society for 1859. Boston, 1860.

The Corresponding Secretary of this old-established and useful Society, Eben Wright, Esq., will please accept our best thanks for his courtesy in sending us their Transactions. They consist mainly of reports of committees on ornamental gardening, flowers, fruits and vegetables, drawn up apparently with industry and care, from which no doubt we shall, on a more thorough perusal, find something to extract for the benefit of our horticultural readers. Massachusetts, as a wealthy, refined, and an old-settled State, has long taken the lead in the delightful pursuit of gardening in all its branches.

Transactions of the California State Agricultural Society for 1858. Sacramento, 1859.

This is a neatly-executed volume of about 350 pages, embellished with several engravings of horses, cattle and sheep, and a large lithographed plan of the stock farm of Jerome C. Davis, Esq., of Yolo

county, which has attained to considerable celebrity. The volume is mainly made up of the proceedings and reports of the Society, with communications from individuals and sub-committees in different sections of the State; all which go to prove that the wealth of California does not wholly consist in its gold, and that the earlier impressions respecting the unsuitability of that interesting and important region for agricultural pursuits were altogether fallacious. The late progress of the State in raising stock, field and garden produce, has been amazingly great. The Corresponding Secretary, O. C. Wheeler, Esq., of Sacramento, will please accept our best thanks for his polite attention.

THE EDINBURGH REVIEW AND THE WESTMINSTER REVIEW, BOTH FOR JANUARY, 1860.

We have received, through Mr. Rowsell, of this city, from the American publishers, Leonard Scott & Co., of New York, the American reprint of these world-renowned Reviews. Among the principal contents of the Edinburgh are: Mortality in Trades and Professions, Rogers on the Coal Fields of North America and Great Britain, Lord Elgin's Mission to China and Japan, Alison's History of Europe, Acclimatization of Animals, Progress of Law Reform, British Taxation, Lord Macaulay; with two other articles of a high literary character. The Westminster contains elaborate articles on Government Contracts, the Realities of Paris, Ceylon, The Social Organism, Sicily as it Was and Is, Christian Revivals, Italy and the Designs of Napoleon; with extended criticisms on Contemporary Literature, a department of this Review of much general interest, and usually executed with impartiality and ability.

It may not be known to many of our readers in country places that Messrs. Scott, the enterprising American publishers, issue regularly reprints of the four leading British Quarterlies, with Blackwood's Magazine, from advanced sheets, and that consequently these rich depositories of literature appear on this continent only a week or two after they are issued in Britain. The Quarterly Review represents in politics the old Conservative party, and has always been distinguished for sound learning and high scholarly character. The Edinburgh Review is an old publication in the interest of the Whigs, and has always had some of the greatest statesmen and scholars in Britain among its staff of contributors. The Westminster Review has been in the field many years, but is much younger than the two preceding, and has from the commencement been identified with Radical views in politics, and with somewhat refined sceptical views in matters of religion. Its contributors, however, are men of great ability, and it always contains articles which no man of average intelligence and public spirit, in the present day, can well afford to let pass without perusing. The North British Review is more recent in respect to origin, and is considered to be the organ of the Free Church party; liberal in its politics, and earnest in advocating the truth and application of Divine Revelation, while it is not behind its older confreres in sound learning and ability. Blackwood's Magazine is too well known throughout the civilized world to need any description here, and has occupied for more than half a century the highest position in the world of letters.

The above four Quarterlies, with Blackwood's Monthly, can be had neatly reprinted for the annual charge of $10, or about one-fourth of the cost of importing the original editions! Among the Canadian agents are: Rowsell, Thompson & Co., Maclear & Co., Armour & Co., Toronto; Barnes & Co., Hamilton; Watson, Port Sarnia; Taylor & Wilson, London; W. E. Tunis, Clifton, Niagara Falls; Dawson & Son, Montreal; and P. Sinclair, Quebec.

Our Subscription List.—Subscriptions for the current volume are coming in very satisfactorily, in small lots; but there is still plenty of room for exertion, in order to prevent good prizes falling to comparatively short lists. There is yet a whole month to the first of April, and we shall be glad if our friends make so good use of it as to take the whole of the edition with which we commenced the year off our hands.

Back Numbers.—In reply to inquiries, we beg to state that we have still plenty of back numbers on hand from the commencement of the present year. When the supply is exhausted, we shall announce the fact, and make arrangements to suit the circumstances.

Back Volumes.—We can also supply to those who desire them, some copies of the volumes of 1857, 1858 and 1859; the Journal and Transactions complete, for each year, at half a dollar per copy, unbound.

To Postmasters and Others Interested.—It occasionally happens that copies of the *Agriculturist* are returned from the post-offices, marked as "Refused," under the impression, we presume, that the parties would be hereafter favored with a bill for the same. In order to correct this impression, we beg to state that we invariably commence the year with a blank book, and do not send a single copy till ordered, excepting only free copies to officers of Agricultural Societies, exchanges, &c. Perhaps half a dozen copies have been returned since the beginning of the year, and they have all, or nearly all, been copies which had been ordered and paid for by Treasurers of Societies and furnished to the parties as members of such Societies. They perhaps have not been aware that they were entitled to copies without further payment, and therefore returned them. We refer to the matter in order that postmasters may be fully aware, and be able to explain, that we do not send any papers till ordered, except only a few sent as free copies.

The Rev. Hannibal Mulkins' Lecture on Scientific Agriculture is concluded in the Transactions accompanying the present number, from No. 3.

Market Intelligence.

Toronto, Feb. 29, 1860.

Fall Wheat—The market for wheat has been buoyant throughout the week, although, perhaps, a shade easier towards the close. The competition between buyers has been keen, and full rates have been realized whenever a fair sample is presented. Prices on Tuesday ranged from $1 28 a $1 32 for prime and extra prime fall wheat; from $1 24 a $1 28 for good and prime, and $1 18 a $1 25 for other grades. The average price for the day was about $1 27 per bushel.

Spring Wheat—is steady at 97c a $1 for common to good, and $1 a $1 05c for good and prime; extra qualities of golden drop, fit to mix with fall, at $1 05 a $1 07 per bushel.

Flour—The transactions of the week are limited; quotations are as follows:—Double Extra, $5 75 a $6; Extra, $5 25 a $5 62½; Fancy, $4 80 a $4 90; Superfine, $4 40 a $4 55.

Barley—is not very active, and prices are steady at 65c per bushel. The supply was larger in the early part of the week, but has fallen off. A very fine sample might bring 70c per bushel.

Oats—Quotations vary each day with the extent of the supply. On Tuesday car loads were sold on the market at 32c. In smaller lots, 35c was the current rate.

Peas—are in moderate supply, with a slightly easier market. For the best varieties, 60c is an outside figure, and 58c being the current rate for ordinary lots.

Seeds—Clover, $5 a $5 25; Timothy scarce, and selling at all prices between $3 and $4, according to quality.

NEW YORK MARKETS.

New York, Feb. 29.

Flour—Receipts 86 bbls. The flour market to-day is firm and unchanged; sales of 7,000 barrels at $5 10 a $5 25 for superfine State; $5 30 a $5 50 for extra State; $5 10 a $5 25 for superfine Western; $5 30

a $5 50 for common to medium extra Western; $5 85 a $6 for inferior to good shipping brands extra round hoop Ohio. Canadian flour market a shade firmer; sales 209 barrels at $5 60 a $7 for extra. Rye flour steady at $3 70 a $4 40.

Grain—Wheat—Receipts none; market very firm and quiet, and unchanged in prices. Rye is quiet at 87c a 88c. Barley firmer; sales 1,000 bushels at 80c a 81c for State; 78c for No. 1 choice. Corn—Receipts 1,860 bushels; market without special change; sales 14,000 bushels at 75c a 80c for inferior to prime yellow Southern. Oats steady; sales at 44½c a 46½c for Canadian, Western and State.

Provisions—Pork dull and heavy; sales 560 bbls at $17 50 for old mess; $18 37 for new mess; $12 62 for old prime, and $14 75 for new do. Beef is steady; sales 300 barrels. Lard steady and unchanged; sales 500 bbls at 11c a 11¼c. Dressed hogs dull; sales of Western at 8c per lb.

BUFFALO MARKETS.

Buffalo, Feb. 29.

Flour—The market is exceedingly quiet, the only sales reported being 110 bbls choice extra Wisconsin at $5 20 a $5 25.

Wheat—remains quiet, the demand being for small milling lots; sales 1,500 bushels Canada club on private terms; 300 bushels fair white Michigan at $1 30; 300 bushels at $1 31, and 200 bushels white Michigan at $1 34.

Corn—entirely nominal.

Oats—continue in moderate demand; sales 1,000 bushels Canadian at 35c.

Barley—steady; sales 600 bushels Canadian at 70c.

Provisions—Nothing doing, and no change to note in quotations. About 100 dressed hogs sold at 7c per lb.

Advertisements.

GALLOWAY BULL.

FOR SALE, A THOROUGH BRED FOUR Year Old Galloway Bull.

E. W. THOMSON.

Carlton West,
Februery 14th, 1860.

PIGS FOR SALE.

FOR SALE, A LOT OF THOROUGH Bred Small Breed Berkshire Pigs.

R. L. DENISON.

Toronto, Feb. 14, 1860.

QUEEN'S SEEDSMEN.

PETER LAWSON & SON.

Edinburgh, 1 George IV. Bridge.
London, 27 Great George Street, Westminster, S. W.

ON ACCOUNT OF THE NUMEROUS applications which have been made to PETER LAWSON & SON, to send their Lists of Seeds and Nursery Produce to the United States and Canada, they beg to inform the Trade in America that they are prepared to furnish them with

PRICE LISTS

and to assure them that any orders they may be favored with will receive their best attention.

All orders must be accompanied by Cash, Satisfactory References in England, or may be forwarded through

CRAIG & NICOL,
No 6 Bowling Green, New York.

January, 1860.

SEEDS! SEEDS! SEEDS!

AS the season is near at hand for parties requiring GARDEN & FIELD SEEDS to look out for the best to be had, I would beg to call the attention of all, and at present, particularly of WHOLESALE PURCHASERS, to my fresh stock which is now about completing; as for quality and extensiveness it cannot be surpassed by any establishment in the country.

Wholesale priced catalogues (for the trade only) are now ready, and may be had on application.

Catalogues for this season, containing many new and rare acquisitions, together with numerous useful remarks and hints for the raising of Vegetables from Seed, &c., will also be ready in a fortnight.

Orders from a distance attended to with usual care and despatch.

J. A. SIMMERS,
Seedsman.

Corner of Front St. and West Market Place.
Toronto, Jan. 30, 1860.

YONGE STREET SEED STORE AND FLOWER GARDEN,

Established 1836.

Fresh Garden, Field and Flower Seeds, for Spring sowing.

THE Subscriber begs to inform his friends and the public, that his stock of Fresh Seeds is now complete, and very extensive, embracing almost every sort of Seed that is adapted to the country.

The stock of Agricultural Seeds is large and well selected, and the vitality of each sort being fully tested, the genuineness of the seeds may be fully relied upon.

Comprising a large stock of:—Spring Wheat, Spring Tares, Tartar and Poland Oats of the most approved kinds; Field Peas, including Golden Vine, and other approved sorts, White and Black Eyed Marrow Fats; Barley, two and four-rowed; Imported Purple and Green Top Swedish Turnip, Imported White Globe do., Imported Yellow Aberdeen do., Imported Six-weeks or Stubble do., Imported Red Round, Red Globe and several other sorts of Turnips; Long Red and Yellow Globe Mangel Wurzel; Sugar Beet and Field Parsnip; Large White Belgian Carrot and Spring Rape; Long Orange, Red, Surrey, and Altringham Carrot; Timothy, Orchard, and English Rye Grasses; Red and White Dutch Clover; French Lucerne, Cow, and Hungarian Grasses, Alsike or Perennial Clover; Yellow and White Millet; Early Potatoes of the most approved sorts; Corn, 8 rowed Early Canada, King Philip, Yellow Dutch, and several other sorts.

Horticultural Books and Garden Tools, Draining Tools, One Horse Ploughs, and Cultivators of all kinds.

The Subscriber has also a full and general assortment of all kinds of Garden Seeds suitable for the country, a catalogue of which, with directions for sowing seeds, can be had gratis.

Merchants and Agricultural Societies ordering seeds in bulk will be supplied at wholesale prices.

Complete assortment of Garden Seeds neatly put up in small papers, with directions for sowing, and sold by the box, containing 150 papers; at very moderate prices.

Twenty packages of Flower Seeds, choice sorts, will be sent free by post to any part of the province, to the address of any party remitting $1, free of postage, or 25 packages, postage unpaid.

JAMES FLEMING,
Seedsman to the Ag'l As. of U. C.

Toronto, February, 1860. 6-t

YONGE STREET SEED STORE.

CHOICE VEGETABLE & FLOWER SEEDS FREE BY MAIL.

THIRTY SIX VARIETIES FOR TWO DOLLARS.

THE Subscriber, wishing to give parties who reside at a distance an apportunity to test the quality of his Seeds, will, on receipt of $2, free of postage, send free to any Post Office in Canada, 24 Full Sized Papers of VEGETABLE SEEDS, many of them containing half an ounce of seed, and 12 Papers of Choice FLOWER SEEDS, with Descriptive Catalogue and Box included—the seeds to be of my own selection. None but the most useful and desirable varieties will be sent.

JAMES FLEMING.
Seedsman to the
Agricultural Association of U. C.

TORONTO, Jan., 1860.

IMPROVED SHORTHORNS.

THE HON. ADAM FERGUSSON, WOODHILL, WATERDOWN, P. O., will have Seven Thorough-bred Durham Cows to calve in Spring. These cows are in calf to "ETHELBERT," bred by Samuel Thorne, Esq., and have a large portion of "DUCHESS" and "BATES" blood. They may be seen at any time at Woodhill, within a half hour's walk of Waterdown Station, G. W. R. R.

Orders for bull calves must be sent by the 1st of March. Full pedigrees will be furnished. Price of each calf $60.

Four of the Cows will be sold at moderate prices.

WOODHILL, Jan. 2nd, 1860.

HUNGARIAN GRASS.

This valuable grass was introduced into this neighborhood three years since by our County Agricultural Society, and has given very great satisfaction to all who have tried it. Its ordinary yield is FOUR TONS TO THE ACRE, and in some cases SIX TONS have been cut. Cattle and all kinds of Stock are very fond of it, preferring it to Timothy. Its fattening qualities too are believed to be superior to those of any other known grass.

The Subscriber has obtained a quantity, and will send to any person making a post-paid application, sufficient to sow one-third of an acre for One Dollar, or One Bushel for Six Dollars.

All seed will be sent free of charge.

ARCHIBALD YOUNG,
Treasurer,
Lambton County Agr. Society]

Sarnia, February 10, 1860.

THE AGRICULTURIST.

ARRANGEMENTS FOR 1860.

THE "AGRICULTURIST, AND JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA" for 1860, will be published on an entirely new system.

It will appear twice a month, and will consequently be much more useful as a medium of intelligence on all subjects affecting Agricultural Societies, and farmers generally, than heretofore.

Each semi-monthly number will consist of 32 pages, and will be printed on fine white paper.

Notwithstanding the increase of size, and of times of publication, the price to single subscribers will be only half a dollar for one copy per annum.

Further, even at this low rate, a bonus will be given of one free copy for every 10 copies ordered and paid for in advance. That is to say, for $5 remitted, 11 copies will be mailed; for $10, 22 copies; for $15, 33 copies will be mailed, and so on.

The *Agriculturist* is Post Free.

It will consequently be the cheapest paper of its kind, and contain the largest amount of reading matter of any published on this continent.

In addition to the very low terms of subscription, as a further remuneration to those who exert themselves to obtain subscribers, the undermentioned money premiums will be paid to those who send in the largest lists accompanied with the amount, before or on the 1st day of April next. Subscriptions will be received at any time, and the amount of each list reckoned up on the 1st April. The money must be received, not merely mailed, on that day. The following are the prizes offered:—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of..... $20

To the person who shall send in the next largest list..... 19

To the person who shall send in the next largest list..... 18

To the person who shall send in the next largest list..... 17

To the person who shall send in the next largest list..... 16

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To the person who shall send in the next largest list..... 5

To the person who shall send in the next largest list..... 4

To the person who shall send in the next largest list..... 3

To the person who shall send in the next largest list..... 2

To the person who shall send in the next largest list..... 1

"AGRICULTURIST OFFICE,"
Toronto, November, 1859.

To Agricultural Societies, &c.

THOROUGH-BRED NORTH DEVON BULLS to sell or let for the season.

"Colonel," 569, A. H. B. The Colonel took the first premium as a yearling at Brantford.

"General," 571, A. H. B. The General took the first premium as a two-year old at Toronto.

Apply to

DANIEL TYE.

Wilmot. Co. Waterloo,
Jan. 3, 1860.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Advertisements—Five cents per line each insertion.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, MARCH 16, 1860. No. 6.

PREPARATION FOR SPRING WORK.

The advent of the agricultural year is close at hand. March has come again with its usual characteristics, storm and sunshine, with alternations of genial warmth and biting cold. And although in this northern zone of this mighty continent little can yet be done in the way of cultivating the soil, there are sufficient indications in the air, woods, and fields, that the active and delightful season of spring, with its warmth, bursting buds, and flowers, is, in obedience to the beneficent laws of nature, again making a commencement. With early spring begin the laborious duties and constant watchfulness of the husbandman.

Now is the time for the farmer to look anxiously about him, and to determine finally upon the adoption of such plans of operation as the more leisure season of winter has enabled him to consider and mature, in reference to the future. Not a moment should now be lost in deciding on the course to be pursued in regard to the cultivation, cropping, and management of every field. It is true that one may see good reasons for modifying the carrying out of a previously arranged system, as the season advances; some changes of conditions not anticipated will be sure to occur; but the farmer will labor under very serious disadvantages, and will probably incur heavy losses, if he allows this active season to find him without a well considered, and practical scheme of farm operations.

Firewood sufficient for domestic wants through the summer till the beginning of winter, ought by this to be laid in, and sufficient rails prepared and drawn to such fences as require repairing. All farm fences, especially the boundaries, ought to be annually examined immediately after the frost is out of the ground, and where needed, strengthened and repaired. If the farmers of a district would attend strictly to this principle, much damage to crops, sour temper, and ill neighborly feeling, would be obviated. As the season in Canada for preparing the soil and sowing the seed is short, nothing that can be devised and prepared during the winter ought to be left till the approach of the busy and all-absorbing period of spring.

Such farmers as have provided themselves with an ample store of turnips, mangels, carrots, &c., will now find them to minister to their own profit, as they unques-

tionably will to the thrift and comfort of their domestic animals. A daily supply of roots to milch cows and breeding ewes at this season of the year, will tend both to increase their milk and improve their condition. Cows yielding milk should be liberally fed, and not turned out to pasture till there is a good bite of grass. But it is to be feared, owing to the scarcity of hay, that farmers will be seriously inconvenienced, especially should the spring, contrary to present appearances, prove late. Old musty hay can be rendered more wholesome and palatable by being steamed and salted, previous to its being fed to the stock; which require strict systematic feeding, both as to time and quantity, to be kept dry and warm, with the strictest attention to cleanliness. They should be kept in good lodges or stables, with a well littered yard to run out in during the day. Sheep will require special attention for a few weeks. Ewes about to lamb should be comfortably housed, but not too closely shut in, as no animal, perhaps, suffers so much as the sheep from want of ventilation and crowding together. Ewes after lambing may be allowed to run out into the yard or field in the middle of fine days, and a few roots, with a little ground grain or bran mixed with linseed, will greatly tend to keep them in a healthy and thriving state, and to increase their milk for their young. Lambs should not be exposed to either damp or cold at this season, and they are better kept under cover until they are several weeks old, or they will be likely to contract some disease, and die. Breeding sows require also special attention, and should receive liberal treatment, that they may afford their young an amply supply of milk.

All kinds of roots that have been kept in covered clumps in the open air, should be examined as soon as the weather will safely admit, and all rotten ones, or such as show symptoms of decay, removed. Sweedish turnips especially ought now to be uncovered and examined, and a very slight protection will be sufficient for them hereafter. It is a general fact that with regard to Swedes in winter, more injury is done from too much covering than too little. Turnips by heating soon run into fermentation, and become totally unfit for stock. The only preventive is to cover the heap more lightly, and in building it to leave perpendicular holes, filled with straw, to allow the heat to escape, and for ventilation. Potatoes should be carefully examined and culled; selecting good sound tubers for seed. Parsnips that have been left in the ground all winter should be taken up as soon as the frost is out, when they will be found fresh and in general sound. Such parsnips will be of the greatest service to milch cows and breeding ewes, at this time of year.

The mouths of covered drains, ditches, and furrows, should now be examined, and any obstruction found to exist should at once be removed. Wheat fields should be particularly looked at with this object, and much of the stagnant water may frequently be removed at a small cost. The farmer should see that his ploughs, harrows, and other implements of cultivation, are in efficient, workable order; ready to be put into operation whenever the opportunity arrives. He should be careful, however, not to commence ploughing before the ground has become tolerably sound and dry; for nothing is so injurious to the seed bed as working the land when it is in a wet condition. Our object in this article is to call the attention of farmers to the imperative necessity of being duly prepared for spring operations, leaving details to our following numbers.

REPORTS OF AGRICULTURAL SOCIETIES.

We beg to remind the Officers of County Agricultural Societies that their Reports for the past year, with those of the Township Societies in their respective Counties,

must be sent in to the Secretary of the Board of Agriculture, at Toronto, on or before the first of next month. They are requested to see, as far as is in their power, that all the reports forwarded to them are complete and correct, and that a list of the Officers and Directors for the current year is added to each. We are glad to learn that a few at least of the Societies are competing for the prizes offered by the Board for Reports.

PORTABLE GRAIN MILLS.

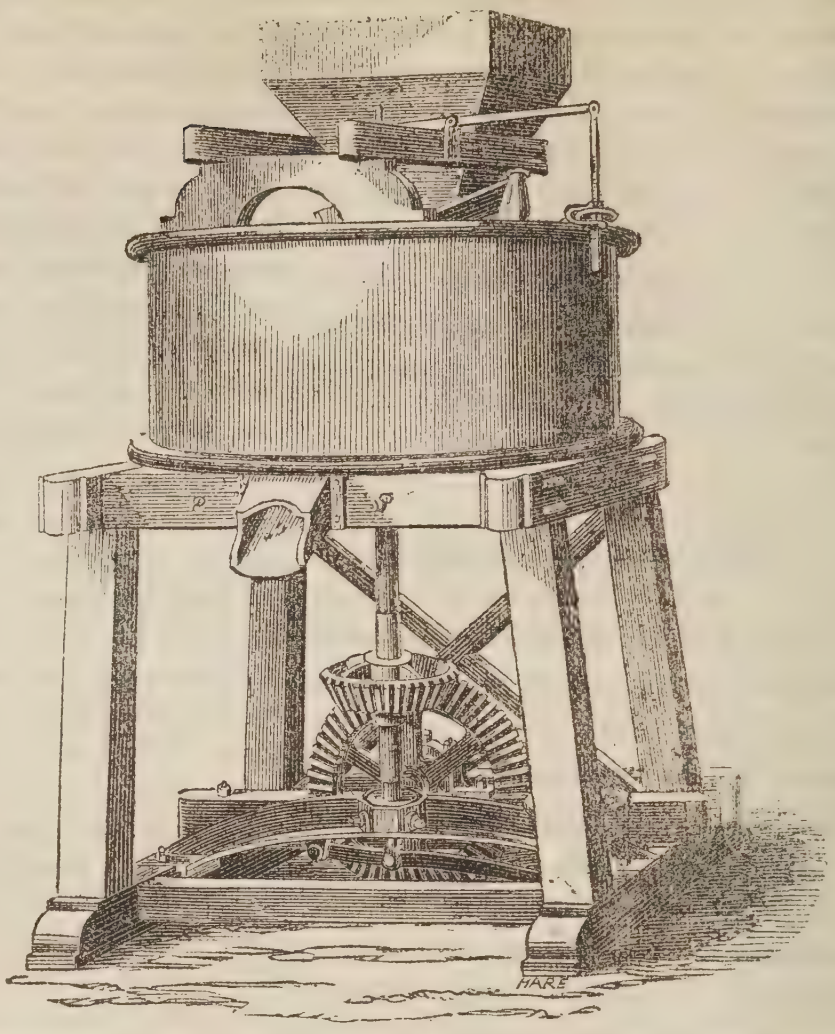
In many of the British Colonies, and in the more recently settled portions of the United States, portable mills for the purpose of grinding wheat and making it into flour, have been found an important acquisition; enabling widely dispersed settlers to enjoy that primary necessity,—pure and wholesome bread,—in the midst of the wilderness. Upwards of twenty years ago we saw many of these mills in England, intended chiefly for the Australian Colonies; they were of simple construction, made of the best materials, of a superior style of workmanship, and did their work very effectually. Wheat was ground into meal, which was separated by a series of sieves into flour, both fine and coarse, shorts or pollard, bran, &c., with almost as much nicety as could be effected by ordinary flour mills. Since then, improvements have been made in these, as well as in most other kinds of machinery and implements; and portable mills are now fitted up that are capable of not only making good flour for domestic use, but also of grinding or crushing oats, peas, flax, &c., for feeding horses, pigs, and cattle. A single machine capable of being applied to such various uses, must be of great economic value, not only in newly settled countries, but also in such as are more advanced. Accordingly we find that these improved portable mills are used extensively in Britain for crushing grain, &c., for cattle, and that a homestead of any extent can scarcely be found without appliances of this nature. In Canada, and the neighboring States, these machines are beginning to be understood and appreciated by the farmers, and more than one kind has been pretty extensively introduced into the more advanced districts.

A great saving is effected in bruising grain before it is given to animals; not only by diminishing the time and power required for mastication, but also by enabling the stomach to digest more easily and thoroughly and the absorbents to take up more completely, the nourishing ingredients of the food. It is well known that oats, when given whole to horses, pass through the intestines in great numbers unbroken; and consequently that little or none of the nourishment contained in the flour of the grain will be assimilated. The difference in the case of horses between whole and crushed oats, is probably not less than 25 per cent; and in the case of cattle it would be found far greater. To working animals especially, the saving of time and labor in the act of mastication, by the employment of crushed grain, and cooked food, is of great importance, as it affords them longer opportunities for rest.

Subjoined is a representation of one of these combined Portable Mills, brought up to the present advanced state of mechanical knowledge, and adapted to the existing wants of farmers and recent settlers. It is manufactured by *Messrs. Ransomes & Sims*, of Ipswich, England; a firm that has for many years been distinguished for the superior construction, materials, and workmanship of their numerous machines and implements; and to whom the highest premiums and medals of the national Agricultural Societies have been frequently awarded.

This valuable mill is well adapted for grinding every description of agricultural produce. It consists of a pair of French burr stones, three feet in diameter, mounted on a strong timber frame, and is adapted to be driven by horse or steam power.

There is a simple arrangement by which the stones may be easily adjusted to grind fine flour, or bruise oats, split beans, peas, &c. It is capable of producing, by ordinary power and speed, 4 bushels of fine barley meal, or 3 bushels of fine flour, per hour.



This mill, when fitted with stones of two feet six inches diameter, can be readily worked by two horses. The three feet mill requires the power of 3 horses; and, when fitted with the Dressing Apparatus, the power of four horses is required. The manufacturers frequently fit up these mills with a complete Dressing Apparatus, neatly arranged in the frame work of the mill, and by this arrangement will produce samples equal to those prepared by the best Bolting Apparatus. The price, with three feet stones, is £55; and with Dressing Apparatus combined, £70. With two feet and a half stones, £42; and with Dressing Apparatus, £55. These mills are so constructed, and so well made of the best materials, that they are not liable to get out of order when properly managed, and, with ordinary care, they will be found very durable.

STABLE MANAGEMENT OF THE HORSE.

Among the heaviest charges in conducting a farm are the purchase and keep of horses; and, perhaps, there is no department of farm manngement in which there is greater room for improvement than in the breeding and care of live stock, particularly the horse. It is too much the practice on this continent to subject the horse to extreme labor during the hot months; and many farmers' horses, in addition to the heavy six days' work of the week, have to travel many miles in waggons or pleasure carriages on the seventh; a practice which literally allows the animals no time whatever for recruiting their exhausted strength. High authority hath said, "that the merciful man is merciful to his beast;" and we consider that as a general thing, working horses, that is such as work hard ten or

twelve hours a day, during the oppressive heat of summer, have an equal right with man, as far as the mere physical nature is concerned, to the privileges of the Sabbath. This noble and useful animal, when properly treated and cared for, will amply reward his owner; perform on the whole far more work than under an opposite course of management, or rather mismanagement; will be comparatively free from diseases, and live out a longer term of years. The health and longevity of the animal is greatly influenced for good by a judicious admixture of food, punctuality in feeding, ventilation, and the most scrupulous attention to cleanliness. The following practical hints on this subject from the *Woodstock Journal*, (N. B.) will be found of much importance.

STABLE MANAGEMENT OF A HORSE.

It is one thing to own a horse, but it is another thing to know how to take care of him. A stable horse needs special care and attention. His feeding must be as regular as the measurement of the hours. When a change offeed is made it must be done with great care—giving a small allowance at first until the stomach becomes used to the change. He must be cleaned every day; and when we say *cleaned*, we mean all that can be conveyed by that word. A good currycomb, brush, and an oiled woollen cloth, are the utensils necessary. First take the currycomb and begin at the top of the neck, back of the ears, working the hand both ways. Proceed in this way till you have gone over the entire body and legs. Then take both comb and brush, and every other stroke, draw the brush across the teeth of the comb to clean it. An experienced groom will do this instantly. This done, take your cloth and lay the coat and remove the dust which adheres to the outside. The face and ears must also feel the brush.

Few men know how to clean a horse properly. If the above directions are followed daily, your horse will enjoy good health generally. Stabled horses must be exercised daily. This is absolutely indispensable to good health. If the feet of your horses are brittle and liable to break and crack, they must be well oiled once a week. A horse thus treated will always be ready to go when wanted, and you will not be ashamed either to ride or drive him.

Another thing quite as important is a clean and well ventilated stable. We cannot excuse any farmer or horse owner, who does not clean his stable twice a day. A stable should be so constructed as to have a wide passage way or floor in front to feed them. Above the manger a space should be left a foot or two in width clear, and the passage-way should be the avenue for the supply of fresh air to the nostrils of the horse.

A horse enjoys a good bed, and it should never be refused him. At night take your fork and make it up light, and you will feel amply rewarded for the humane treatment you have given your beast.

THE WONDERS OF INSECT LIFE.

The following interesting account occurs in Dr. Fitch's Report on Insects, for the year 1855, where he speaks of the aphides or plant-lice which cover the leaves of the cultivated cherry:

This species commences to appear as soon as the leaves begin to put forth in the spring; these first individuals being hatched from eggs which were deposited the preceding autumn. All the individuals which are bred during the spring and summer appear to be females, some of them with wings upon almost every leaf, but most of them without wings. The individuals which are hatched from the eggs resemble the mature wingless females, except that they are smaller and lighter colored, none of the species of this family passing through those remarkable changes in their form which most of the orders of insects undergo. They bring forth their young alive during the continuance of warm weather. These huddle around their parents upon the under surface of the leaves as closely as they can crowd themselves; indeed, they often are found two deep, a portion of the colony standing upon the backs of the others, requiring only sufficient space between them to insert their beaks into the leaves to suck their juices. The numbers which thus make out to stow themselves within a narrow compass are almost incredible. Upon the under surface of a small leaf three-fourths of an inch long and half an inch wide, I have counted upon one side only of the mid-vein, one hundred and ninety of these lice. Yet this leaf was not more densely covered than many others. The two surfaces of a small leaf but an inch long, would therefore furnish ample space to accommodate a thousand of these insects.

As all the leaves are tender and juicy early in the season, the aphides multiply rapidly, and in about a month after the first individuals make their appearance, namely, between the 15th and 25th of June, as I find the dates entered several times in my notes taken in different years, some of the trees become literally overrun with these vermin, their black bodies covering not only the under sides of the leaves, but also the leaf-stalks, the tender succulent ends of the twigs, and sometimes the green young cherries and their stems; whilst a swarm of flies, wasps and other insects, attracted to them to feast upon their honeydew, keep up a constant buz and hum around the infested trees during warm sunny days. The leaf of the cherry, however, is of such a tough coriaceous texture that it does not become curled and corrugated like those of most trees when similarly circumstanced. Its edges merely turn backwards or become slightly rolled. The tips of the twigs, however, and the young leaves growing from them, have their juices pumped out and drained by such a multitude of tiny beaks, shrivel and die, looking as though they had been scorched by fire; and the whole tree would soon perish, it is evident, if this severe infliction was protracted. But when the aphides become thus numerous, their natural enemies and destroyers are attracted to the tree and multiplied in such numbers as to make the most astonishing havoc among this feeble race of beings. Although single trees in my grounds have been equally infested in some former years, I never knew them all to be overrun by these lice, as they were the 25th of June, the present year. It was evident, if the evil continued, the trees could live but a short time. But on examination upon that day I found two or three yellow larvæ of the Syrphus flies upon almost every leaf, whilst the Lady birds or *Coccinellidæ* with their larvæ and Aphis-lions and other destroyers, were equally numerous. All fears as to the result were consequently allayed. Still, I little anticipated such a rapid and utter extermination of these vermin as actually ocurred. A week afterwards, upon a carefnl examination, not a living aphis could be found upon the leaves of any of the trees, and the conquerors had already disbanded their forces and had nearly all retired. The empty skins of the slain, adhering to the leaves, with the swollen bodies of others which had been punctured by parasites—for these, too, it appeared, had stepped in to give their progeny a share of the feast—were the only relics of the teeming myriads which had so recently swarmed there. It is by looking at the works of Nature in a definite manner, and tracing out her operations specifically and in their minute details, that we arrive at some faint conceptions of their magnitude and grandeur, and become vividly impressed with the truth that no other agency than that of a Creator, infinite in wisdom and in power, could have peopled the world which we inhabit with such countless numbers and such an endless variety of objects animate and inanimate, each occupying its appropriate sphere, and all so arranged as to fulfill the objects for which they were called into existence. Has the reader, as he has passed a forest, ever attempted to conjecture the number of trees which it contained? and has his mind passed onwards to a surmise of the probable number of leaves growing upon each tree, and onwards still to the number of insects which may be drawing their sustenance from each one of these leaves, and still further, to the number of minute and infinitesimal parasites which may be subsisting upon each of these insects? Among the cherry trees alluded to above, was a row of seven young ones, which had attained a height of about ten feet. By counting the number of leaves upon some of the limbs and the number of limbs upon the tree, I find a small cherry tree of the size above stated, is clothed with about seventeen thousand leaves. And at the time alluded to, these leaves could not have averaged less than five or six hundred lice upon each, and there was fully a third more occupying the stems and the tips of the twigs. Each of these small trees was therefore stocked with at least twelve millions of these creatures. And yet so vigilant, so sharp-sighted and voracious were their enemies, that at the end of a few days the whole were exterminated.

Correspondence.

THE PUBLIC GRANT TO AGRICULTURAL SOCIETIES.

To the Editors of the Agriculturist.

March 8th, 1860.

Gentlemen,—I this day read in one of the city papers, that in answer to questions put to the Ministry yesterday in the House, they stated their intention of giving to the Agricultural Society this year only a sum equal to that raised by each society, in place of three for one as authorised by law, and as heretofore paid them. This

change, at such a time, will be seriously felt from one end of the Province to the other, and will cripple the energies of societies which are now doing much good, by causing the introduction of the improved breeds of horses, cattle, sheep, swine, and improved varieties of all kinds of farm produce, and stimulating the inventive genius of our implement manufacturers.

Besides all this, I should think the reduction of funds will be much felt by the Agricultural Association, as they are entitled, by statute, to one-tenth of the Government grant to the County Societies, and which, I believe, is all the Government support they receive.

It was chiefly on this account I took up my pen to write this letter to your very excellent paper, and which I hope to see published, more especially after the many invitations you have given to farmers to commit to writing any thing which attracts their attention, bearing upon their profession; and conceiving this to be of vital importance to farmers, I have accepted your invitation.

This proposed reduction is most certainly beginning at the wrong end, and cutting off revenue as fast as reducing expenditure; for instance, just look at the state of the country for the past three years. When little else had befallen us but deficiency in our crop, every one was crying out the country is ruined, and will never recover. How very soon that tune was changed, when, last year, we had a better crop, thereby bringing into the country, from the sale of our wheat, beef, pork, and butter, millions of dollars, besides feeding our own population well, and keeping over a large quantity of stock. I might have added to the list of exportations, horses, hundreds of which I know have found a market in the United States within the last twelve months. Without all this, what indeed would become of the country, and how should we pay the extravagant debts brought upon us by over-anxious-to-trade merchants, not to mention feeding and supporting our needy Railroads. I know Messrs. Editors that you eschew politics, or I should feel more than half inclined to pitch into the ruling powers, for contemplating such a reckless reduction.

If a single case could be made out where the Government Grant was foolishly spent, or wantonly wasted, there might be some excuse, but, on the contrary, wherever Agricultural Societies exist a marked change for the better is perceptible. As a Canadian agriculturist, I call upon you, gentlemen, and upon the Board of Agriculture, to use your and their influence in our behalf, both on account of the Local Societies, and the Provincial Agricultural Associations, of which we are justly proud.

I am, Messrs. Editors,
Your obedient servant,
THE PRESIDENT OF A COUNTY AGRICULTURAL SOCIETY.

[The subject of our correspondent's letter is an important one, but we are inclined to think that he is somewhat premature in assuming that the public grant to Agricultural Societies will be reduced to the extent that he mentions. There were certainly some remarks reported in Parliament in regard to the proportion the grant should bear to the subscriptions of societies, but they did not seem to us to bear the construction our correspondent puts upon them. —EDS.]

EX-OFFICIO DIRECTORS OF COUNTY SOCIETIES.

CANNATA COTTAGE,
Near Chatham, Feb. 28, 1860.

To the Editor of the Agriculturist.

DEAR SIR,—I hope you will be so obliging as to answer the following questions in the next issue of your valuable journal. Can a President of a Township Agricultural Society take his seat and vote at meetings of the Directors of the County Society, by his Township Society having had ten subscribers to the County Society from among their number for the year previous, or must the money be paid in advance to give them a right to vote? At the last meeting of this County Board, I was denied the right to vote as a Director, being but a President of a Township Society; but of one which had subscribed by ten members $10 to the County Society in 1859. I was told that would not do—that unless I advanced the money, or gave my note, I should not have the right to vote at the meeting—neither of which I would do, but claimed my right to vote under the 28th Clause of the Act to provide for the establishment of a Bureau of Agriculture, but that right was denied. I hope you will

give your advice on the subject, as others, as well as myself, may and will be greatly benefitted thereby.

I am, Sir,
Yours most respectfully,
DAVID WILSON.

[Our correspondent will find the above question already answered at page 45, No. 3 of the present volume. We will, however, repeat a little more fully what we there said. The proviso in Clause 40 of the present Act was originally introduced with the view of obviating the inconvenience which might sometimes occur from the Presidents of the Township Societies in any county meeting as *ex-officio* directors of the County Society, and by an accidental numerical majority outvoting the elected Directors of the County Society, and thus controlling the disposition of the funds of the latter, when in fact, in case of the Township Societies they presided over having no members also members of the County Society, these *ex-officio* directors could not be considered as representing at the Board of the County Society any persons who were interested in it. We are, however, well informed that the parties who suggested the change did not intend that it should be understood and acted upon in the way which the words of the Act, as they stand at present, seem to authorise. The intention in introducing the proviso was, that it should be, in effect, as follows: "Provided that each such Township Society, and Mechanics' Institute, shall have upon its list of members at least ten persons who are also members of the County Society, and paying not less than five shillings each, or that such Township Society or Mechanics' Institute shall have otherwise contributed two pounds ten shillings, annually, to the funds of the County Society." It is in the spirit of the proviso as here written, that several County Societies have, to our knowledge, interpreted it, and when the Act again undergoes revision by the Legislature, the clause will probably be amended to this effect. As it stands at present, it certainly seems to warrant the construction put upon it by the County Society mentioned by our correspondent, and we cannot undertake to say that they have not the law upon their side in so doing. It might be a question for the lawyers to argue, whether a contribution by members of the Township Society, individually, to the amount of ten dollars, to the funds of the County Society, is in fact a contribution by the Township Society itself, within the meaning of the clause; but, without resorting to legal quibbles, we think the County Boards cannot go very far wrong in meeting the Township Societies in a spirit of compromise, and acting upon the proviso as if it were printed as above written.—EDS.]

KEEPING FARM ACCOUNTS.

To the Editor of the Agriculturist.

SIR,—

Let any farmer make the experiment, and he will find it interesting as it is useful, and both interesting and useful, to know from year to year the actual produce of his farm. Let everything, therefore, which can, be measured and weighed, and let that which cannot be brought to an exact standard, be estimated as if he himself were about to sell or purchase it. Let him likewise, as nearly as possible, measure the ground which he plants, the quantity of seed which he uses, and the manure which he applies. The labour of doing this is nothing compared with the satisfaction of having done it, and the benefits which must arise from it. Conjecture, in these cases, is perfectly wild and uncertain, varying often with different individuals, almost a hundred per cent. Exactness enables a man to form conclusions, which may most essentially, and in innumerable ways, avail to his advantage. It is that alone which can give any value to his experience. It is that which will make his experience the sure basis of improvement; it will put it in his power to give safe counsel to his friends; and it is the only ground on which he can securely place confidence in himself.

W. A. C.

Ancaster, February, 1860.

DRAINS AND QUICKSANDS.

To the Editor of the Agriculturist.

Sir,—I have a piece of land of about six acres which is a foot and a half lower than any of the land immediately surrounding it. The top soil is a mixture of clay loam and black soil, such as is generally found in such situations; the subsoil is a very tenacious yellow clay; immediately under the clay, and perhaps three feet from the surface, is a quicksand, I cannot say how deep; I have frequently dug into it in the summer season, to make a watering place for cattle, and I never could get deeper than a foot or eighteen inches in the sand before the water came rushing in and upwards at such a rate as effectually to stop me; the water would rise in the hole to within about two feet of the surface, when it would remain stationary. I have dug a ditch two feet deep across the piece, and another three feet and a half deep across a neighboring piece for a distance of about two hundred yards to a creek, which effectually carries off the top water. I fallowed the piece last summer, and sowed fall wheat on two acres of it only, across the highest end, as I thought the rest of it was too low, and would probably answer better for spring wheat. On one side of the two acres there was perhaps a quarter of an acre of the low ground, and on this the wheat grew quite thin and spindly, which I have no doubt is caused by the body of cold water lying under it in the quicksand. Now my object in giving you all these particulars is this: If I dig a ditch or drain through the clay which forms the outer rim of this basin of quicksand until I strike the sand, would that carry off the water without running the drain through the sand itself? If it would not, how can I run a drain or drains through the sand when the water comes rushing in as I have described above? If I do attempt to drain it, I cannot get more fall than will allow me to go, say four feet and a half below the surface, which would be eighteen inches or two feet below the top of the quicksand. I shall be obliged to you if you would in some early number of the *Agriculturist* give such directions as will meet the case.

Your obedient servant,
WILLIAM STUART.

Waterdown, February 9, 1860.

Remarks.—It is generally a difficult and unsatisfactory thing to offer *practical* directions relative to draining, without the advantages of personal observation. In all cases the cause of wetness should, as far as possible, be correctly ascertained; when, with due examination of the nature and direction of the underlying strata and the conformation of the surface, the most efficient and economical mode of cure can usually be decided on by an experienced drainer.

From our Correspondent's description of his own case, we infer that the stratum of quicksand, of unascertained depth, is saturated with water proceeding from some higher source; the pressure exerted in such instances will account for the water rising in holes dug by the spade in the summer season, to within two feet of the surface. If a sufficient out fall could be obtained, we would recommend the construction of a deep drain near the upper end of the land at a right angle (or as nearly so as practicable) to the inclination of the field, and if possible, to pierce through the stratum of sand. One such drain, when securely made, and of sufficient size, might relieve the whole field. But with an out fall of only four feet and a half, any attempt to cut off the water by one or two deep drains, is unfortunately impracticable; and this circumstance will probably render it impossible to drain such a piece of land thoroughly and economically. In this case it is not only the surface water that has to be carried off, which may always be done, to some extent, by open furrows, but the chief cause of the wetness and coldness of the cultivated surface is the large amount of water in the underlying layer of sand. To construct a drain in a bed of pure quicksand, so as to make it efficient and durable, is one of the greatest difficulties the drainer has to encounter; and with all the skill and care with which such drains can be made, they are always liable to be choked up by the infiltration of the sand. It is useless to attempt underdraining in such circumstances, without laying down boards for the tiles or pipes to rest on, and surrounding them tightly with softened clay; good tough sod

may answer for a while, but it will decay, and cannot be permanently depended upon.

As an experiment, without risking any large outlay, we would suggest for the consideration of our correspondent, to lay in, during the approaching summer, two drains across the upper portion of the field, one at the juncture of the clay and sand; and the other at some fifty or sixty feet distance, as deep into the sand as the outfall and other circumstances will admit; using the precautions above stated for protecting the drain by clay, &c. By carefully observing the action and effects of these two drains for a couple of seasons, some judgment might be formed of their relative efficiency, and adaptation to the case in question. Pipes, of not less than 3 inches diameter, with a good fall, would be the best form of material to be employed. The month of August, when the ground is generally in the driest state, is the most favorable time for draining quicksands. If the water prove troublesome, the drain can be deepened by degrees before putting in the pipes, giving time for the water to drain off, and taking care, when necessary, to protect the sides against slipping in. If these few hints shall prove of any service to our correspondent, and lead to any practical result hereafter, we shall feel obliged by his communicating the particulars.—Eds.]

CULTIVATION OF FRUIT-TREES.

(*For the Canadian Agriculturist.*)

It is a fact that must have attracted the attention of every person who has travelled through the inland counties of Canada, that as we recede from the Lakes Ontario and Erie, Northward, orchards begin to diminish, more especially after crossing that well known watershed the "Ridges," and at length in the most northern counties, as North Simcoe, North Ontario, and Victoria, they almost entirely disappear.

The superficial observer may have attributed the fact entirely to the newness of the country, and thought that as time is required for the growth of fruit trees, it only required the necessary time to elapse when the inhabitants of our northern townships should also be blest with their wholesome and nutricious fruit, and their farms ornamented with productive apple orchards.—Very many farmers farther south, who have an interest in the prosperity of the northern townships—who perhaps have purchased farms in them for their sons—or may be intending to do so, have also, with many of the residents, consoled themselves, nearly up to the present time, with the same belief. The necessary time for raising orchards, since the land has been cleared, has passed, but none, comparatively speaking, are to be seen. It has at length become evident to all that there is an enemy to the apple amongst us. Many farmers have planted orchards, but only to see most of them die after the first and second winters; and even the scattering trees that have come to maturity appear somewhat stunted and *neglected*, and do not bear well. Whilst other persons, seeing the bad success of the attempts that have been made, decline incurring the risk of trying for themselves. And the majority, I fear, have come to the conclusion that apples will not grow in so uncongenial a climate. Wherein consists the difficulty, and in what way can it be obviated, is a question that every farmer amongst us should make his study, and upon which he should gladly receive information. Does the extreme cold of winter kill the young trees, or is it the late spring frosts, or is bad husbandry the principal cause? It is my opinion that with proper precaution, and with the necessary information, every farmer in Simcoe, Victoria, and North Ontario, might raise a good thrifty orchard. He might not always be sure of a good crop of fruit—occasionally a frost, like that of last year, would wholly or partially destroy his crop, for the same thing takes place in the front townships and on the south side of the lakes.—Yet he would, with good management, have his fair share of apples and other fruit, and would not be under the necessity of buying from the "Yankees" at exorbitant rates, or of doing as very many are now compelled to do, make their pies of pumpkins and berries, and when these fail go without! Now what are the precautions which the farmer must take, and the information required, in order that this very desirable object may be attained?—Theory may do much towards answering the question, but there will remain a wide gap that can only be filled up by practical observation and experience. Those who

have succeeded in raising trees and fruits in northern localities, should make known, through the proper medium, their experience and the plans they have adopted, and urge their neighbors to adopt the same means. Every farmer who has not an orchard should at once institute enquires into the matter, and with the stock of information thus obtained, make an earnest attempt to attain this very desirable object. If some of his trees die, let him replace them by others, and, if possible, ascertain the cause of their failure. If this plan be adopted, success will, almost to a certainty, crown his efforts; and what a boon will that be to himself and family. How will he have increased their comforts, and may I not say their luxuries? How much will he have done towards making his home a homestead? What improvements could he undertake that would more adorn and beautify his farm—that would more enhance its value, or that would better pay "the reward of his labor!" Fruit trees are in fact almost the only *ornamental* trees that the farmer north of the "Ridges" requires to cultivate, as splendid spruces, balsams, and in fact almost every American evergreen, are found in abundance.

Should not some person of more ability and experience take up this subject, I may in a future communication mention a few facts that have come under my observation with regard to the managing of apple orchards.

H. R.

Agricultural Intelligence.

Prepared Cattle Foods.—It is stated in a late number of the London *Illustrated News* that "Mr. Pawlett, the well known sheep breeder, has been pursuing some experiments as to feeding. Beans, Cotton Cake, and Thorley's food are the three articles he selected for trial, and he put a lot of eight ram hogs on each. At the end of four weeks he sent them to scale, and found that those fed on beans made $10\frac{3}{4}$ lbs. of live weight, those on cotton cake $16\frac{1}{2}$ lbs., and those on Thorley's food $13\frac{1}{4}$ lbs.; and that the cost of producing the mutton in each case was $3\frac{1}{2}$d. per lb., $2\frac{3}{4}$d. per lb., and $4\frac{1}{4}$d. per lb. Still, damaging as this experiment seems as regards the applicability of Thorley's food to fatten animals, in comparison with cheaper substances, we remember an instance in one of our principal herds where a sickly calf could not be got to eat anything till it was tried with it; and from all we can hear it is most beneficial as a tonic, but not as an article of regular food. Mr. Thorley, however, announces that, in order to meet the Rothamsted objectors, he has enlarged his defence pamphlet from thirty-two to sixty-four pages, which is rather alarming."

Cultivation of Flax. — Mr. J. H. Brown, of Ayr, publishes the following advertisement:—

"J. H. Brown purposes to erect a flax mill in the vicinity of Ayr, and to encourage the cultivation of flax, he will furnish seed to those farmers who may feel disposed to make the experiment of raising flax, by returning to him the same quantity of seed in the fall which they receive in the spring.

J. H. B. will clean and dress the flax at his mill, then purchase it from the producers at the rate of $100 per ton.

Parties desirous of renting land for the cultivation of flax can make arrangements with Mr. Brown for that purpose.

The following is a statement of the produce of nine acres of flax, grown on the farm of Mr. Joseph Hollman, of the township of Blenheim:—

Raised from 9 acres $111\frac{1}{3}$ bushels of flax seed and 37 cwt. of flax.	
Sold the seed at New Hope, $111\frac{1}{3}$ bushels, at $1.31 per bushel.....	$145 83
Sold 37 cwt. of flax at $5 per cwt.	185 00
Total amount realized from 9 acres.	$330 83
Average per acre.....	36 75

Mr. Hollman ploughed his land once in the fall and cultivated once in the spring, then sowed the seed and harrowed it in. He hired the pulling done at $2 75 per acre. Mr. Benjamin Shune, a neighbour of Mr. Hollman, got his flax pulled, threshed, and rotted, for $6 per acre.

Parties wishing to arrange with Mr. Brown will find him at Colwell's Hotel, Ayr, or forward letters to his address at the Ayr, P. O.

J. H. Brown.

Ayr, Feb. 23, 1860.'

Profits of Farming.—In a lecture on sewage, delivered at the Farmers' Club on Monday evening, Mr. Alderman Mechi, referring to his Tiptree-hall estate, said:—"For the last years my gain as landlord and tenant on my little farm of 170 acres has been nearly £700 per annum. Even this year, with wheat at 42s. per qr., I have gained £600 after paying every expense. Of course, much of this benefit has arisen from steam power, drainage, deep cultivation, and other improvements; but the liquified manure system has greatly contributed to this result."

Horticultural.

HINTS FOR MARCH.

(*Continued from page* 108.)

At present we have the prospect of an early spring. The snow has in most situations disappeared, and the frost is rapidly thawing out, so that unless severe weather again set in, gardening operations will be in a forward condition. Care, however, should be exercised in this uncertain climate, not to uncover and expose tender plants and shrubs too soon. All decayed shoots, or such as have been injured by the winter cold, should now be removed; and every effort made, as far the weather and the state of the surface will admit, in clearing up the garden and preparing for active out door operations.

For raising choice early annuals, which give so marked a beauty to a garden, large or small, the following description of framing from *Buist's American Flower Garden Directory*, will be found concise and explicit:

OF FRAMING.

Where it is desired to have the more showy annuals early in bloom, it is necessary to prepare a hot-bed frame, for the purpose of bringing them forward. It is time, about the first of the month, to collect and prepare manure for the desired hot-bed; and, as that operation, in many instances, is very imperfectly performed, a few observations on the subject may be useful.

Take three parts of fresh hot stable manure, with one part of fresh oak leaves. Have a sufficient quantity to make the intended bed, or beds, from three to four feet high. Shake and mix up both together in a compact, conical heap, in order to encourage fermentation. If the weather is cold and windy, cover it with straw or leaves and boards, which is necessary to produce the desired effect. If fermentation soon takes place, it will need to be thoroughly turned over in eight or ten days. If any of it has become dry and musty from excessive heat, as you proceed, water the affected parts, pile all up neatly, and leave it protected in part as before. In five or six days more, it will have to be turned again, repeating it until the first extreme heat has been over. In neglect of this, the heat, after making up the bed, will be vehement for a week or two, frequently destroying the vegetative purity of the soil, and proving destructive to the seeds.

Allowing the manure to come to a lively heat, having no unpleasant, rancid smell, proceed to mark off your intended bed, running it east and west, as nearly as possible, measure your frame, and allow the site of the bed eight inches, each way, larger than the frame: at the corners, place a stick or rod perpendicularly. The ground ought to be higher than that around it, to prevent water from getting into the bed, which, if low, must be filled up; or, if supposed that water may lodge there, a little brushwood might be put under the manure, which would keep it from being inundated. The manure must be built up square and level, shaking, mixing and beating it regularly with the back of the fork. When you have it to the desired height (from two to three feet will be sufficient for annuals), leave the centre of the bed a little higher than the sides, thus allowing it more to subside. When finished, put on the frame and sash, or sashes, keep them close until the heat arises, covering them at night with mats or shutters. As soon as you feel the heat increased, give air by tilting the sashes a few inches, to let off the steam and stagnated air, observing to close in the afternoon, and cover at night. If the heat is violent, about half an inch of air might be left during the night. In about three days, if all has been properly attended to, the bed will be what is termed sweet. Then put in about six inches of fine garden soil; if heavy, mix a little sand with it. Spread it level, and, when the soil is heated through, sow in small drills, from one-eighth to an inch deep, according to the size of the seeds; cover with very fine sifted soil. Some very small kinds do best when sown upon the surface. When sown, give gentle sprinklings of water until they come up, when it will be necessary to give air freely during the day, to prevent them from being weak, or damping off, which many of them will do if they have not air regularly admitted.

A LIST OF CHOICE FLOWERING ANNUALS ADAPTED FOR SOWING ON A HOT-BED.

Alyssum calycina, white, fragrant.
Argeratum Mexicanum, blue-flowered Argeratum.
Asclepias curassavica, swallow wort, orange- and red-flowered.

Aster Chinensis, China Aster, or Queen Margarets, in great variety. The late imported German and Italian Asters are of extraordinary beauty.
Balsamina hortensis, Balsam, commonly called Ladies' Slipper.
Browallia alata, upright blue and white Browallia.
Cacalia coccinea, scarlet Cacalia, or Venus' Paint Brush.
——— sonchifolia, orange Cacalia.
Calandrinia discolor, rosy purple, *very pretty.*
Celosia cristata, Coxcomb, two varieties, red and yellow.
Centaurea Americana, American Sultan.
——— suaveolens, yellow and sweet Sultan.
Clarkia elegans, elegant rose-coloured Clarkia.
——— pulchella, showy purple Clarkia.
——— ——— alba, white-flowered Clarkia.
Cleome grandiflora, large lilac-flowering spider-plant.
Clintonia elegans, elegant blue Clintonia.
Collinsia bicolor, two-coloured Collinsia.
——— heterophylla, lilac and white.
Commelina cœlestis, blue-flowering Commelina.
Dianthus Chinensis, China pink, many fine double varieties.
Gomphrena globosa, red and white globe Amaranthus.
——— Hoveyii, orange-coloured.
Hibiscus manihot, large yellow Hibiscus.
——— Africanus major, buff with black centre.
Helichrysum bracteatum, *Xeranthemum lucidum,* } Yellow everlasting.
Lophospermum erubescens, —— *scandens,* } Rose-coloured flowers like the Digitalis, a fine climber for arbours.
Loasa laterita, } Orange red, an interesting climbing plant, blooming throughout the season.
Malope alba, white-flowering Malope.
——— grandiflora, large red-flowering Malope.
Mathiola annua, all the varieties of ten week stocks should be industriously cultivated, and seed sown also in April and May for autumn blooming.
Maurandia Barclayana, blue-flowering, ——— semperflorens, pink-flowering, ——— alba, white, } Climbing plants for pillars, trellises or arbours.
Mesembryanthemum.
——————— crystallinum, Ice plant.
Mimosa pudica, Sensitive plant.
Mimulus, Monkey flower of sorts. They grow best in moist half-shady places, are very pretty, generally bright colours of yellow spotted with crimson or rose.
Petunias of variety, a beautiful genus of every variety of colour, from deep purple to pure white, blooming from June till frost; the seeds are small, and require to be very lightly covered.
Phlox Drummondii, and its varieties of crimson, rose, lilac, and white.
Portulaca splendens, splendid purple-flowered Purslane.
——— Thorburnii, yellow.
——— alba, white.
——— elegans, crimson.
——— Thellussonii, red-flowered.
Salpiglossis picta, atropurpurea, &c., delight in a cool situation.
Schizanthus retusus, orange-coloured Schizanthus, ——— pinnantus, calico Schizanthus, And a few other varieties, } Like a rich soil, and a cool and partially shaded situation.
Shortia Californica, yellow Shortia, very profuse flowering.
Tagetes, Marigold, the new varieties of the French are very pretty—they like rich soil and plenty of moisture.
Tropæolum aduncum, Canary bird flower, a beautiful climber.
——— atrosanguineum, crimson Nasturtium, Thunbergia alata, buff with black centre, ——— alba, white-flowered, ——— aurantiaca, fine orange. } Climbing plants.
Verbena, a lovely family of pretty procumbent plants, that bloom from June till frost—a packet of seeds will produce every colour and shade from white to crimson.
Vinca rosea, Madagascar Periwinkle, ——— alba, white-flowered Periwinkle. } Thrive best in a warm, dry situation, with rich soil.
Zinnia elegans, splendid Zinnia, ——coccinea, scarlet, —— alba, white, ——pauciflora, yellow } Very showy plants, and do best when they are well supplied with water.

Though the above will bloom much earlier by being sown on a hot-bed, yet where that convenience cannot be obtained, they will all succeed treated as hardy annuals.

After sowing, if the weather be clear, the sun acting on the glass will produce a too rapid evaporation of the moisture of the soil, and may otherwise affect seeds but thinly covered, which must be guarded against by shading with mats for a few hours during bright sunshine. In giving water, it ought always to be about milk warm, and passed through a fine rose, to

prevent the stems being broken or bruised. Weeds must be drawn out as soon as they appear.

To such as have a desire and opportunity for raising fruit, which contributes so essentially to domestic comfort and the health of a family, the subjoined directions taken from *Barry's Fruit Garden*, an excellent, practical treatise, will afford to amateurs and residents in the country some useful aid:

The formation of a fruit garden requires a consideration of the *soil, situation, enclosures, laying out, selection of trees, selection of varieties,* and *planting.*

1st. *The Situation.*—This is generally governed by the particular circumstances of the proprietor, those only who build with reference to the location of the garden, or who have a large domain at their disposal, having an opportunity of selection to any considerable extent. Persons who live in cities and villages, have to make the best of their situation. As it is, if it be exposed, they can only give it protection by lofty enclosures, that will break the force of the winds. The *aspect* they cannot alter, and must adapt other circumstances to it. Those who can should select a situation convenient enough to the dwelling, to render it at all times easy of access, in order to save time and labor in going to and from it. It should also be sheltered from the north and west winds. The former are destructive to the blossoms in spring, and the latter frequently blow off the fruit before its maturity. In sections of the country subject to late spring frosts, an elevated situation is to be preferred, as in the case of orchards. A full eastern or southern aspect should be avoided, because in them the sun's rays strike the trees while the frost is upon them, and produce injuries that would be avoided in other aspects. Where artificial shelter is required, a belt of rapid-growing trees, composed of evergreens and deciduous trees mixed, should be planted on the exposed side, but at such a distance as to obviate any difficulty that might arise from the injurious effects of shade, or from the roots entering the garden. Such a belt of trees might, at the same time, be made to impart a pleasing and highly ornamental appearance to the grounds.

2d. *The Soil* is a most important consideration. As in a garden a general collection of all the fruits is to be grown, and that in the highest state of perfection, the soil should be of that character in its texture, depth, and quality, best adapted to general purposes. It should not only be suitable for the apple and the pear, but for the peach, the cherry, and the plum—a good, deep, friable loam, with a gravelly clay subsoil, and entirely free from stagnant moisture. In this country, our warm summers, and frequent, protracted droughts, render a deep soil for a garden absolutely necessary. *Two feet* is little enough, and three would be still better. The means for deepening, drying, improving, and changing the character of soils have been already pointed out under the general head of soils, and need not be repeated here. Suffice it to say, that it will always be found true economy to be liberal in the first preparation of the soil; for after a garden is laid out and permanently planted, improvements are always made with greater difficulty and expense.

Enclosures.—The cheapest and most ordinary kind of enclosure for gardens in this country, is the tight board fence, and the picket or paling fence. The former should be made of stout cedar posts, set at six feet apart, and three or four feet in the ground, the ends being previously charred to increase their durability, connected in the middle and on the top with cross-bars or rails which may be two by four inches. The boards should be well seasoned, matched, and securely nailed to the cross-bars. Where the fence is required to be higher than the posts, the boards can extend above the top rail two, three, or even four feet, if necessary. The picket or paling fence is made in the same way, as far as the framework, posts, and crossbars go; but, instead of matched boards, pickets, from three to six inches wide, and pointed on the top, are used, and a space of two inches left between each. Where the proprietor can afford the expense of a brick or stone wall, it will prove the most permanent, and, in the end, the cheapest enclosure. The height of the fence or wall depends somewhat on the extent of the garden. In ordinary cases, eight or ten feet is the proper height, but when the garden is very small, five or six feet is enough; and the open paling will be preferable except on the north side, to the tight board fence, as it offers less obstruction to the air and light. A high fence around a very small garden, besides being injurious to vegetation in it, looks quite out of character, giving to it the appearance of a huge box. Live hedges, as recommended for orchards, might be employed around coun-

try gardens of considerable extent, say an acre or upwards, but they require to be kept in the neatest possible condition.

Trellises.—In England, and other parts of Europe, where the summer temperature is not so high as it is here, espalier trees are trained directly on the garden walls or fence; but our hot sun renders this unsafe, except in the case of the grape, or on the north sides of the walls. The sun strikes the south side of a fence with such force that the foliage in contact with it is burned. It is therefore necessary, where the walls or fences are to be occupied with espaliers, to erect suitable trellises at the distance of six to twelve inches from them, on which to train the trees; the form of these differs according to the nature of the subject to be trained. They are generally made of upright and cross bars, of inch boards three inches wide, placed within six to twelve inches of each other, according to the growth of the species; the larger the foliage and the longer the shoots, the greater may be the distances; thus, the grape twelve inches, and the peach eight. Sometimes they are constructed of wooden bars and wire rods alternately; these answer a good purpose for the grape, as it fixes itself to the wires by the tendrils. The trellis is fastened to the wall by iron hooks, and should stand a little farther from it at the bottom than at the top, for the purpose of giving the tree a better exposure to the sun, rain, &c. Fruits are grown so successfully in this country in the open ground that walls or trellises are seldom used, except to economize space. In the north, however, where the more tender fruits do not succeed in the open ground, walls may be advantageously employed, as the trees trained on them are easily protected both from winter and spring frosts.

Laying out the Fruit Garden.—This is the arrangement or distribution of the ground into suitable plots or compartments, necessary walks, etc. The mode of doing this depends on the size of the garden, and the manner in which it is to be planted.—Fruit gardens, properly speaking, are such as are wholly devoted to fruits; but a very common form, as has been already observed, is the *mixed* garden, where a portion only is devoted to fruits, and the remainder to culinary vegetables. We will first consider

The Fruit Garden proper.—In all fruit gardens the number of walks should be no greater than is absolutely necessary for convenience. In small places the better plan appears to be, to carry the principal walk around the outside, leaving as much as possible of the interior, where air and light are enjoyed to the greatest extent, for the trees. A border should be left between the fence and the walk, of sufficient width for the trees to be trained on the fence trellis. If appearances were to be strictly observed, this border should be as wide as the fence is high, but as a general thing five to six feet will be sufficient; and where ground is limited, appearance must in many cases be sacrificed to economy. Where the work is all performed by manual labor, the walks need not be more than five to six feet wide, as that admits of the passage of a wheelbarrow; and this is all that is required.

Next month, when the active operations of the kitchen garden in Canada may be said to commence in earnest, we shall give such details as we trust will be found generally useful and adapted to the season.

J. F.

SOFT SOAP FOR THE BORER.

It is stated by Dr. Fitch, the celebrated American Entomologist, that soft soap, although it will not kill the apple borer after he has entered the wood, will exclude the eggs. The soap should be thin enough to lay on with a brush, so as completely to cover the bark. This operation should be commenced at the bottom of the trunk by scraping away a little of the earth at the roots, and proceed upwards as far as the borer is supposed to have reached. It is best to begin in the spring, and repeat the operation once or twice during the summer. If heavy rains should wash it off, the soap should be applied again immediately. It is said that the insect will not lay its eggs in the bark thus saturated. The *Country Gentleman* thus observes:—

"This insect seldom attacks young trees kept constantly growing. They rarely disturb the nursery when the soil is kept loose and the trees suffer no check—hence the importance of transplanting with care, and allowing no drawback to their progress. Trees allowed to spread low, (and where the soil is not used for the cultivation of crops this is a good way of raising them,)

seldom suffer from the attacks of this insect on account of the shade produced about the stem of the tree."

How to Produce Large Fruit.—A correspondent of the *Gardener's Gazette* says, by a very simple and easy process fruits of many kinds may be raised about one-third larger than is usually the ease, and improved. The secret consists in supporting the fruits so that they shall not be allowed to hang their whole weight upon the stalk, or twist about in the wind. The *Gazette* states that when fruit is allowed to hang naturally upon the stalk, the increasing weight strains the stem or twig, and thus lessens the quantity of nutritious food flowing to the fruit, which may be supported either by tying it to a branch with a piece of string, or by enclosing it in a small net. Flowers, such as dahlias, peonies, may also be rendered much larger by adopting this system.

Mildew in Gooseberries.—Applications of powdered sulphur to the foliage and fruit of the gooseberry, when the fruit begins to form and increase in size, is said to be a complete protection from mildew. The application should be made every few days. Spent tan, placed around the bushes, preserves them from the ravages of the gooseberry worm, it is said.

Scientific.

Charcoal.—Charcoal surpasses all other substances in the power which it possesses of condensing ammonia within its pores, particularly when it has been heated to redness. It absorbs ninety times its volume of ammoniacal gas, which may be again separated by moistening it with water. It is by the virtue of this power that the roots of plants are supplied in charcoal exactly as in humus, with an atmosphere of carbonic acid and air, which is renewed as quickly as it is abstracted. Charcoal has a physical as well as a chemical effect on soils, which is decidedly useful. It renders them, as far as it is present, light and friable, and gives additional warmth to them by its color, and retains readily the rays of the sun during the day. Wherever charcoal has been applied, rust never affects the growth of wheat.—*Liebig*.

Good Health—How to Preserve it.—Dr. Frank H. Hamilton has delivered an excellent address on Hygiene, before the graduates of the Buffalo Medical College. We make a few extracts:

Within a few years our houses have been robbed of the domestic hearth, toward which so many associations have always centred, and air-tight stoves have been substituted for the iron dogs. Not content with this, the enemies to our race have still more lately taken away the stoves which, destitute of the essence, served to remind us at least, of the ancient fire-places; and instead, they have built for us iron furnaces —Etnas—under ground, so that now what of the oxygen we are not able to consume, and convert into carbonic acid, is vitiated by impure gas escaping from its hidden chambers, by invisible particles of coal dust, and by other impurities which clog up the air-cells, and close the avenues of life, or stick along the parched fauces as if reluctant to convey their poisons to the lungs.

Stoves have, no doubt, abridged the sum of human life, but by these subterranean iron furnaces we are truncated—cut short in the middle. It is an error to suppose that hot-air furnaces can ever be so constructed or managed, at least in private houses, as not in any degree to prove detrimental to health. We wish we could persuade ourselvss that this is not so, for it is certainly very agreeable, in a climate like ours, to enjoy throughout all the rooms and passages of the house, warm and uniform temperature; but it is just this even warmth which is one of the sources of mischief. The inmates are so little accustomed to the cold within doors, and become so morbidly sensitive, that they shudder at the idea of going out, and if they ever do venture into the air, the frost enters into their open pores, and they hasten back to their shelter, chilled, exhausted, and discouraged. They are no better able to endure the storms than a plant reared in a hot-house. It was the venerable Bede, I think, who said, "When men lived in houses of willow, they were of oak; but when they lived in houses of oak, they were of willow."

We need for our dwellings more ventilation and less heat; we need more out-door exercise, more sunlight, more manly, athletic, and rude sports; we need more amusements, more holidays, more frolic, and noisy, boisterous mirth. Our infants need better nourishment than colorless mothers can ever furnish, purer milk than distilleries can manufacture; our children need more romping and less study; our old men more quiet, and earlier relaxation from the labors of life. All men, both young and old, need less medicine and more good council.

Our cities need cleansing, paving and draining. The Asiatic cholera, the yellow fever, the plague, and many other fearful epidemics are called the opprobia of our

art, and our fellow-citizens upbraid us with the feebleness and inefficiency of our resources in staying their fatal progress. When will they learn that, although we do not fail to cure these maladies, the more precious secret of prevention is in our possession, and has been for these many years.

A Cold Atmospheric Wave.—During the past year, the Smithsonian Institute, under the able supervision of Professor Joseph Henry, has maintained its extended system of meteorological observation, and been enabled to make some very curious investigations respecting the three memoriable cold days of January, 1859. It was found that the cold of the three days above mentioned swept progressively over the whole country like a wave, coming down from the Arctic regions and first entering the territory of the United States at the extreme north-west, among the Rocky Mountains. It was experienced at Utah some three days before it reached the banks of the northern Mississippi, and was heralded by telegraph at Minnesota some two days before it reached Washington. At Buffalo it was some hours in advance of Boston, and was felt last on the Atlantic Ocean, where it appears to have disappeared. This cold wave also swept South in a most remarkable manner, and progressively appeared in Florida and other southern States and Mexico; and the last pulsations, as it died away in that direction, were experienced in Central America and the West India Islands. Taken in all, it was one of the most remarkable phenomena ever noticed, and the facts collected seem to prove that the originating impulse came from the extreme north-western portion of the American continent.

A factory for the manufacture of oil from shale has been started at Collingwood. The works are upon a large scale. Forty-eight tons of shale are used every week, producing 1750 gallons of oil. An acre of ground will supply sufficient shale for a years work. The oil is adapted for burning and lubricating purposes.

Editorial Notices, &c.

The office of the Board of Agriculture is now at the corner of King and Simcoe Streets, Toronto, in front of the Government House, being the same place in which it was some years ago.

The London Quarterly Review for January, 1860:

We are in receipt of this splendid review through Mr. Rowsell, of this city. The articles are: The Three Colonies of Australia; Cotton Spinning Machines and their Inventors; China and the War; The Roman Wall; Religious Revivals; Life and Works of Cowper; and Reform Schemes; all of which will amply repay an attentive perusal.

Blackwood's Magazine for February:

We have also received through Mr. Rowsell, a copy of Blackwood for February. It contains, as usual, articles of great literary merit, abounding in information that cannot fail to instruct and interest a wide class of readers. Those on Robert Burns; France and Central Italy; The diffusion of taste among all classes a national necessity; and a Visit to the Columbia River and Vancouver's Island; will be perused with equal pleasure and profit on both sides of the Atlantic. This American edition is very neatly printed by Leonard Scott & Co. of New York, at $3 a year, forming two handsome volumes annually. The same firm issue quarterly the four leading British Reviews, viz: the *Quarterly*, *Edinburgh*, *Westminster*, and *North British*, all of which can be obtained, including Blackwood, for an annual subscription of $10; being only about a fourth of the cost of importing the original editions from England. Any one of the above Reviews, and Blackwood's Monthly Magazine, can be procured for $5 a year. We would strongly recommend our readers to subscribe for the whole, by which they will get these invaluable publications at an extraordinary low price, and keep themselves posted up in all the great literary, scientific, social, and political questions of the day. No book clubs, reading rooms, mechanics' Institutes, or farmer's associations should be without them.

To Subscribers.—We are still able to supply back numbers. Secretaries of societies or clubs, and others ordering a considerable number of copies should recollect that it is only the orders received on or before 1st April, accompanied with the amount of subscription to correspond, that can compete for the cash premiums.

Market Intelligence.

TORONTO MARKETS.

Wednesday, March 14.

The supplies of produce during the past week have been moderately large, taking into consideration the season of the year, and a brisk business has been done in grain, although of other articles there has not been so much brought in as in former weeks.

Fall Wheat—The week has been characterized by great buoyancy on the wheat market, which has resulted in an important improvement in prices. From Thursday until Saturday, rates went up from $1 38 a $1 40 to $1 45 a $1 47½, and on Tuesday $1 48 a $1 50 were the extreme outside rates for the very best samples. On the last named day, the receipts were pretty large, amounting to 2,500 bushels, most of which moved off the market at about $1 45, while the choice lots were picked out at $1 40 a $1 48, and in one or two cases $1 50 per bushel. These rates refer only to the better grades of shipping wheat, which comprise the bulk of the deliveries; but even for common and inferior lots $1 35 a $1 40 were frequent figures.

Spring Wheat—For fine samples $1 05 has been frequently paid, and on Tuesday $1 06; and in one or two cases $1 10 per bushel was paid.

Flour—The flour market exhibits a buoyant aspect. Views of holders have advanced. Some few sales have transpired at better prices, but transactions have not been frequent. The following quotations must therefore be regarded as nearly nominal, the outside figures being the rates demanded by holders:—Double Extra, $6 00 a $6 50; Extras, $5 60 a $6 00; Fancy, $5 25 a $5 40; No. 1 Superfine, $4 75 a $5 00; No. 2 Superfine, $4 25 a $4 50; Oatmeal, $4 25 a $4 50; Cornmeal, $3 25 a $3 50.

Barley is dull at 60c per bushel.

Rye 70c a 75c per bushel.

Oats—Sales have been made with ease at 35c, and in some cases 36c.

Peas—For good samples 60c a 62c would be freely paid.

Seeds—The rulling figure for good Clover is from $5 to $5 50 per bushel. Timothy seed is not plentiful, but still the high rates check the sales. The latter qualities sell at $3 a $3 50, and inferior grades at $2 a $2 50 per bushel.

Potatoes are in fair supply at 30c a 35c per bushel, according to quality.

Hay in moderate supply at $11 a $19 per ton. Baled hay in small lots at $18. Straw $7 a $8 per ton.

Pork—Fresh is becoming scarce at the nominal rates of $6 a $6 50 per 100 lbs.—Cured meats are quoted wholesale at $18 per barrel for mess pork; $14 a $15 for prime mess, and $11 a $12 for prime. Bacon 8c per lb. Hams, smoked, 10c a 11c; unsmoked 9c a 10½c.

Beef—The demand for first class cattle is more active, and 6c per lb. has been paid, while 5½c a 5¾c has been frequently realized. For second cattle, 4½c a 5¼c per lb. is the current rate. Sheep $4 a $6 each. Lambs—none in the market. Calves in demand at $4 a $6 each.

Beef Hides are steady at $5 25, but more frequently $5 50 per 100 lbs. Sheepskins $1 a $1 25 each. Calfskins 10c per lb.

Butter—We have no improvement to notice in the market for butter, the stock of which is large and the demand dull. No. 1 tub better by wholesale at 14c a 15c per lb., and No. 2 can be bought freely at 10c a 11½c. Fresh 17c a 19c per lb.

Eggs—Fresh are scarce at 12½c.

NEW YORK MARKETS.

New York, March 14, 1860.

Flour.—Receipts 2487 barrels. The market is dull and heavy, and lower. Sales of 6,000 barrels at $5 30 a $5 35 for superfine State; $5 45 a $5 55 for extra State; $5 30 a $5 35 for superfine Western; $5 45 a $5 65 for common to medium extra Western; $6 00 a $6 20 for inferior to good shipping brands—extra round hoop Ohio. Canadian flour is quiet; sales 150 barrels at $5 90 a $7 25 for extra. Rye flour steady at $3 70 a $4 40.

Grain.—Wheat no receipts. Market dull and heavy, 1c and 2c lower; sales, 1,500 bushels at $1 28 for prime Milwaukie club. Rye quiet at 85c a 87c. Barley steady; sales 12,000 bushels State at 78c a 80c. Corn, receipts 10,900 bushels—market heavy and lower; sales 12,000 bushels at 75c a 76c for white and yellow. Oats dull and heavy at 43c a 44½c for Western and Canadian.

Provisions.—Pork market is dull and heavy, with sales of 650 barrels at $17 75 for old mess; $18 a $18 20 for new do; $12 50 for old prime and $14 56 for new do. Beef is firm—sales 300 barrels. Lard is a shade firmer; sales 100 barrels at 10¾c a 11⅛c. Butter is in moderate request at 11c a 14c for Ohio, and 14c a 20c for State.

YONGE STREET SEED STORE AND FLOWER GARDEN,

Established 1836.

Fresh Garden, Field and Flower Seeds, for Spring sowing.

THE Subscriber begs to inform his friends and the public, that his stock of Fresh Seeds is now complete, and very extensive, embracing almost every sort of Seed that is adapted to the country.

The stock of Agricultural Seeds is large and well selected, and the vitality of each sort being fully tested, the genuineness of the seeds may be fully relied upon.

Comprising a large stock of:—Spring Wheat, Spring Tares, Tartar and Poland Oats of the most approved kinds; Field Peas, including Golden Vine, and other approved sorts, White and Black Eyed Marrow Fats; Barley, two and four-rowed; Imported Purple and Green Top Swedish Turnip, Imported White Globe do., Imported Yellow Aberdeen do., Imported Six-weeks or Stubble do., Imported Red Round, Red Globe and several other sorts of Turnips; Long Red and Yellow Globe Mangel Wurzel; Sugar Beet and Field Parsnip, Large White Belgian Carrot and Spring Rape; Long Orange, Red, Surrey, and Altringham Carrot; Timothy, Orchard, and English Rye Grasses; Red and White Dutch Clover; French Lucerne, Cow, and Hungarian Grasses, Alsike or Perennial Clover; Yellow and White Millet; Early Potatoes of the most approved sorts; Corn, 8 rowed Early Canada, King Philip, Yellow Dutch, and several other sorts.

Horticultural Books and Garden Tools, Draining Tools, One Horse Ploughs, and Cultivators of all kinds.

The Subscriber has also a full and general assortment of all kinds of Garden Seeds suitable for the country, a catalogue of which, with directions for sowing seeds, can be had gratis.

Merchants and Agricultural Societies ordering seeds in bulk will be supplied at wholesale prices.

Complete assortment of Garden Seeds neatly put up in small papers, with directions for sowing, and sold by the box, containing 150 papers, at very moderate prices.

Twenty packages of Flower Seeds, choice sorts, will be sent free by post to any part of the province, to the address of any party remitting $1, free of postage, or 25 packages, postage unpaid.

JAMES FLEMING,
Seedsman to the Ag'l As. of U. C.

Toronto, February, 1860. 6-t

SEEDS! SEEDS! SEEDS!

TORONTO SEED STORE!

Corner of Front St. and West Market Place.

THE Subscriber in returning his sincere thanks for the partonage so liberally extended to him for the past four years, since commencing the business, would now beg to direct the attention of his friends and the public, to his large and well assorted stock of

FRESH GARDEN, FIELD AND FLOWER SEEDS,

All of which have been procured with his usual well-known care and practical knowledge from parties in Europe and America, personally known to him; he would therefore venture to say that the quality of all his Seeds cannot be surpassed in this Country or anywhere else.

FARMERS and GARDENERS would do well to examine before purchasing elsewhere, for it is their interest particularly to procure the best of seed to be had, and SPURIOUS SEEDS are often offered by unscrupulous parties under pretended inducements, which, if depended on, may prove fatal to crops, on which purchasers depended for a living.

☞ No seed is sold in his establishment without first being carefully tested.

☞ Large supplies of all the leading varieties of the different kinds of seeds, most suitable to this climate, are constantly kept on hand.

Catalogues with full directions for sowing and raising vegetable and other seeds, may be had gratis, on application; and being a practical gardener of 19 years' experience, he will always feel happy to give all necessary information, personally, regarding the mode of cultivation, selection of varieties, &c., gratuitously to any of his customers.

For the convenience of those who wish to stock a small Garden with Vegetables and Flowers, but are unacquainted with the proper quantities for that purpose, he has collections ready put up.

Price of Collection of Garden Seeds, $2.
" " Flower Seeds, 1.

J. A. SIMMERS,
Seedsman,
Corner of Front St. and West Market Place.

Toronto, March 12, 1860. 6-t

PIGS FOR SALE.

FOR SALE, A LOT OF THOROUGH Bred Small Breed Berkshire Pigs.

R. L. DENISON.

Toronto, Feb. 14, 1860.

THE AGRICULTURIST.

ARRANGEMENTS FOR 1860.

THE "AGRICULTURIST, AND JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA" for 1860, will be published on an entirely new system.

It will appear twice a month, and will consequently be much more useful as a medium of intelligence on all subjects affecting Agricultural Societies, and farmers generally, than heretofore.

Each semi-monthly number will consist of 32 pages, and will be printed on fine white paper.

Notwithstanding the increase of size, and of times of publication, the price to single subscribers will be only half a dollar for one copy per annum.

Further, even at this low rate, a bonus will be given of one free copy for every 10 copies ordered and paid for in advance. That is to say, for $5 remitted, 11 copies will be mailed; for $10, 22 copies; for $15, 33 copies will be mailed, and so on.

The *Agriculturist* is Post Free.

It will consequently be the cheapest paper of its kind, and contain the largest amount of reading matter of any published on this continent.

In addition to the very low terms of subscription, as a further remuneration to those who exert themselves to obtain subscribers, the undermentioned money premiums will be paid to those who send in the largest lists accompanied with the amount, before or on the 1st day of April next. Subscriptions will be received at any time, and the amount of each list reckoned up on the 1st April. The money must be received, not merely mailed, on that day. The following are the prizes offered:—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of..... $20

To the person who shall send in the next largest list..... 19

To the person who shall send in the next largest list..... 18

To the person who shall send in the next largest list..... 17

To the person who shall send in the next largest list..... 16

To the person who shall send in the next largest list..... 15

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To the person who shall send in the next largest list..... 3

To the person who shall send in the next largest list..... 2

To the person who shall send in the next largest list..... 1

"AGRICULTURIST OFFICE,"
Toronto, November, 1859.

To Agricultural Societies, &c.

THOROUGH-BRED NORTH DEVON BULLS to sell or let for the season.

"Colonel," 569, A. H. B. The Colonel took the first premium as a yearling at Brantford.

"General," 571, A. H. B. The General took the first premium as a two-year old at Toronto.

Apply to

DANIEL TYE.

Wilmot. Co. Waterloo,
Jan. 3, 1860.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Advertisements—Five cents per line each insertion.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, APRIL 2, 1860. No. 7.

SPRING WHEAT.

There is too much reason to fear that our winter wheats in many situations have already more or less suffered, from the sudden and extreme changes of temperature, which have characterised the winter. We have had several days in March as warm and spring-like as those of April or May; leaf and fruit buds were rapidly swelling, and appearances in general indicated the early advent of spring. A sudden change, however, has taken place, and the latter portion of the month has been characterised by cold north-westerly winds, producing most serious injury on the young wheat plant, which previously exhibited in most places rather a weakly appearance. Although the plants at present look sickly and unpromising, yet if their roots are living and escape being thrown out by frost, and the weather hereafter prove favorable, upon dry and well prepared soils, the crop may reach an average, in case it escapes the ravages of the midge. But should the present severe weather continue much longer the most serious apprehensions will be entertained, particularly on wet and badly prepared land, for the result.

With such a contingency looming in the distance, we would earnestly invite the attention of farmers to the subject of spring wheat. It is not yet too late to make the necessary preparations; land that was in with peas, or any kind of root crop last year, if not otherwise occupied, will do excellently for spring wheat. Even a clover ley, if ploughed up at once, may do well for this purpose. Not a day, however, should now be lost in determining what to do in this matter.

From the attacks of insects, and the injuries from late severe frosts, fall wheat has of late years proved to be an increasingly uncertain crop; and notwithstanding the higher price which winter wheat always commands, there can be no doubt that upon wet and heavy lands, especially, spring wheat is a far more certain and profitable crop. It does not require, like the winter varieties, the preparation of a summer fallow, and its yield in general, as we are circumstanced at present, will in most cases be found both more certain and more abundant.

We have had in Canada for several years past, several good varieties of spring-wheat. The club and Mediterranean, have in many places done well, but these and other sorts have unquestionably deteriorated of late, and it would be highly advantageous to introduce either new sorts, or fresh seed

imported from Europe, A change of seed of all our cultivated grains, grown on different soils and in somewhat different climates, is a matter of much greater moment than many farmers, judging from their practice, seem to imagine. We are convinced that more attention will have to be paid by our farmers for the future to these matters, or the attempt to grow wheat in many places will prove to be abortive, and consequently unprofitable. In several large districts in Upper Canada spring wheat has in great measure superseded the winter varieties, and although the price is relatively lower, yet the comparative certainty and greater yield of the crop will, in most cases, be found more than a compensation.

The most generally approved variety of spring wheat at the present appears to be the *Fife*. Upon high, light ground it is thought less suitable than the club, and some other sorts; but on low, wet lands it is perhaps the best suited of all varieties. It possesses also this advantage over others, that it will bear late sowing, and upon suitable and well prepared soils will generally yield from 25 to 30 bushels and upwards to the acre. Many people prefer sowing it late, in order to avoid the risk of the midge. Fife wheat can be sown as late as the middle, or even the end of May in the western section of the Province, with a good chance of a favorable result. This feature in its characteristics must recommend it to a large number of farmers at the present time. The Fife has, we believe, been cultivated in this Province for upwards of a dozen years, and by obtaining seed from different soils, carefully selected for its purity and plumpness, it may be kept from any serious deterioration for some time to come. From the want of attention to such precautions the Fife wheat generally is not now equal in weight and quality to what it was a few years since. In the present uncertain state of wheat growing both here, and throughout a large zone of this North American Continent, the introduction of new varieties both of winter and spring wheat is a matter of the greatest public interest. We may state for the information of such as are practically interested in this matter, that Mr. Fleming, Seedsman, of this city, has a large quantity of Fife Wheat, for seed, which he warrants to be of pure quality.

In recommending farmers to turn their attention more to spring wheat for a while at least, we would urge them to make the best preparations in their power. The ground should be well ploughed and free of weeds, and in a condition as regards its chemical constituents, fit for producing a profitable crop. Nothing short of these requirements, can, for any length of time, remunerate the producer. The continuing the cultivation of poor, worn out soils, while it exhausts the pocket of the farmer, is equally certain to deteriorate the *quality* of the grain.

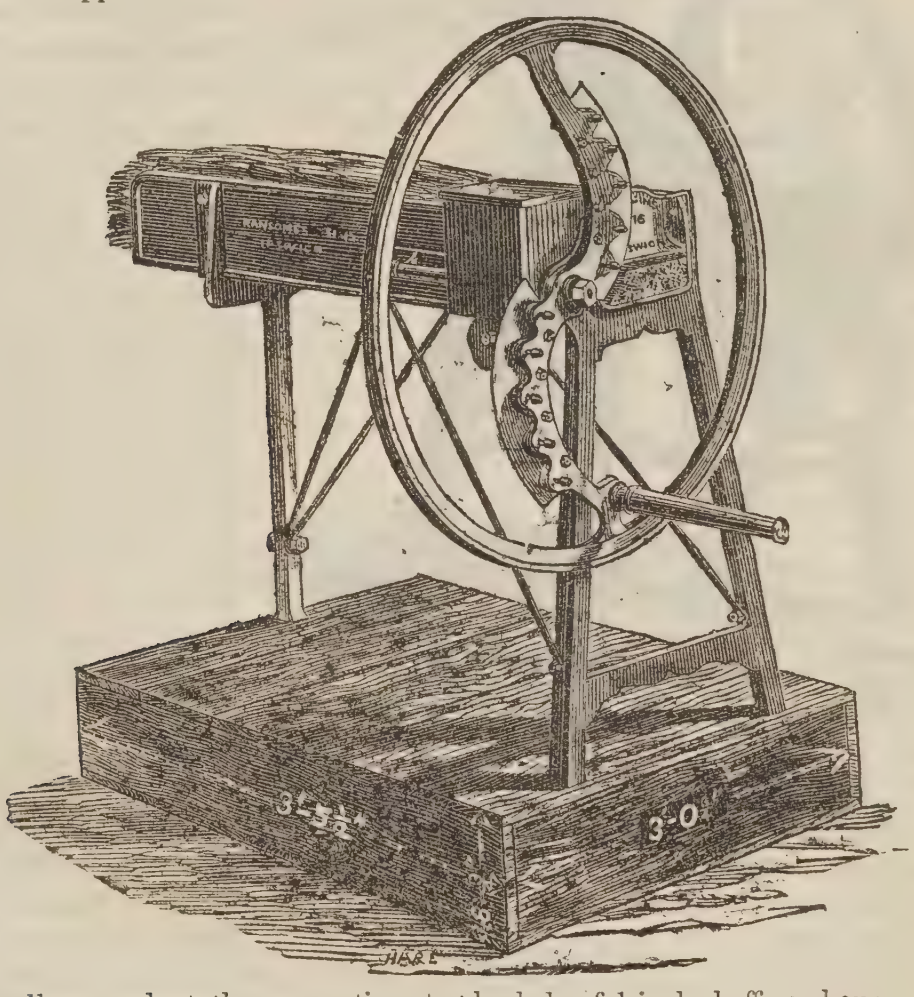
In conclusion we would recommend the rolling of wheat lands, such as are light and spongy especially, as early as the state of the surface will admit. This will tend to consolidate the earth around the roots of the plant, and will materially assist, by fixing more closely the roots, to enable them to obtain a more certain and copious supply of food from the soil. In case the surface should be smooth and hard, and the roots and lower parts of the plant alive, a light bush harrow, followed by the roller, might be beneficial. But where winter wheat is extensively killed in the root, by the action of wet and frost, there is but one alternative, to plough the ground immediately, and sow either spring wheat or some other crop.

STRAW CUTTERS.

The advantages of cutting fodder fo cattle are now universally acknowleged, and there are few farms of any considerable extent, but have a straw, or, as it is commonly but erroneously called, a chaff cutter, which is found to be a machine of great economic importance.

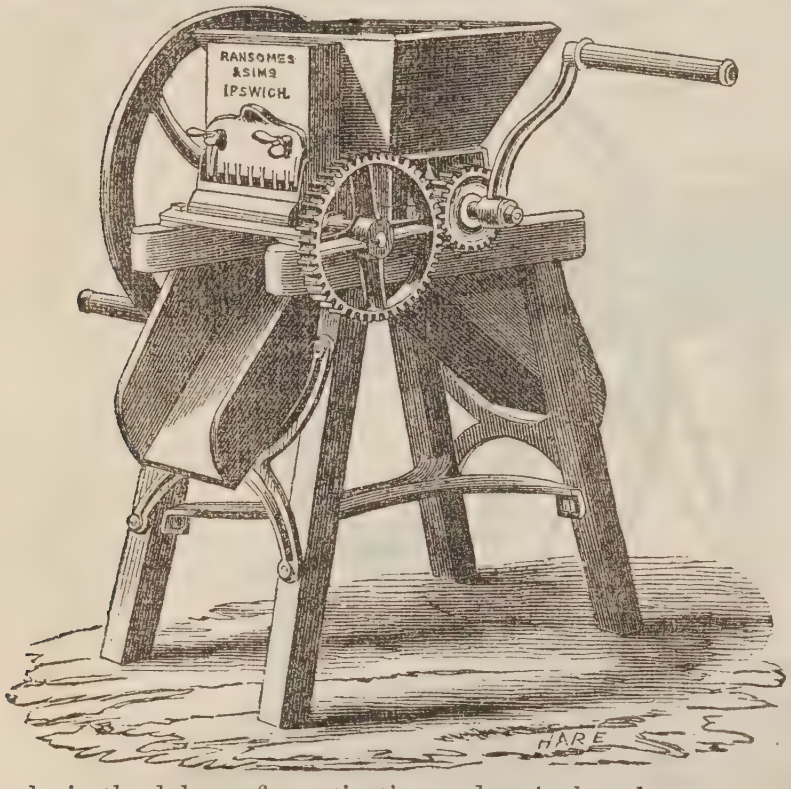
There are several classes of these machines in use both in Europe and America, most of which possess some particular advantage or other; those known as the *disc*, seem to be generally preferred for ordinary purposes. The principal feature, the cutting knife, fixed upon the fly-wheel, is invariable, except that it sometimes carries one, at other times two knives. The machinery or details are exceedingly varied. In some, it is adapted to cut of various lengths by means of ratchet wheels and lever catches applied to the motion of the feeding-rollers, and at the same time to move the substance forward only in the intervals of the strokes of the knife; in others, the motion of the straw at intervals only is attended to; in a third, a continuous motion of the straw is deemed sufficient; and these varieties of motion are produced by other and various arrangements of spur, bevel and screw gearings.

The accompanying engraving represents a straw cutter manufactured by Messrs. Ransomes and Sims, of Ipswich, England, specially adapted for exportation; and of which large numbers have been sent to the British Colonies. It is entirely made of iron and steel, and so arranged as to take to pieces and pack into a box measuring 3 feet 5½ inches by 3 feet 1 inches, by 8¾ in. deep, or about 7½ cubic feet, as shown in the engraving. It has a mouth 8 inches wide, and cuts the straw into ⅜ in. lengths. But little power is required to work it; a stout boy can easily cut from 10 to 12 bushels of ½ inch chaff per hour. The machine being simple in its construction and made of the best materials in a substantial manner, is not liable to get out of order, and with proper management will be found very enduring. Price £3 15s. Packed in case with the following extras: 1 worm, 1 pair of wheels, 1 pair of knives, with half a dozen each of bolts and set screws, £5 5s.



GRAIN AND OIL CAKE BREAKERS.

Agricultural mechanics have of late years rendered the farmer the most essential assistance, not only in cultivating the soil, but in reaping, threshing, and preparing grain for market; also in crushing or breaking it for the feeding of sheep, horses, and cattle. It is now well known that grain, when crushed, is brought into a much more favorable condition as food for stock, than when it is given whole. Not only is the labor of mastication reduced, but grain when broken is more thoroughly acted upon in the stomach, and is thereby more readily and completely assimilated so as to repair the waste, or add to the growth of the animal tissues. As might be expected, the varieties of machines applied to these purposes are quite numerous, but they may all be arranged under three kinds. First: such as act on a principle that partakes of cutting and bruising, by means of groved metal cylinders, and which is applied to those chiefly driven by the hand. Second: machines adapted to bruise only by means of smooth cylinders; this is applied exclusively to those driven by steam, or other agency more powerful than the human hand. Third: breaking and grinding by the common grain mill stones, and, therefore, chiefly worked by water or steam power. Linseed bruisers, from the oleaginous nature of the seed, are apt to have their rollers clog up, and to get out of order, unless made perfectly smooth, and with the greatest care. To grind or break into small fragments the cake, after the oil has been expressed, is found in practice to be both convenient and beneficial in feeding it to cattle.



The accompanying figure represents an admirably constructed Hand-power Mill, made by Ransomes & Sims, of Ipswich, which will be found exceedingly useful. It essentially consists of three distinct mills on one frame. (1) A Biddell's Patent Bean Mill, which will cut or crush 3 bushels of beans per hour, irrespective of their size and dryness. The great novelty of this machine consists in the teeth or cutters being made of separate pieces of hardened steel, fixed in a cylinder; each tooth has three prepared cutting edges, so that when one edge, or set of edges, becomes dull, they may be taken out, turned one-third round, and put in again, and a *new edge, or set of edges* is obtained; and when these fail, they may be again taken out and turned one-third round, and it makes a *second fresh set;* and when this resource fails, they may be taken out and *easily replaced* with new teeth by an ordinary laborer, at the small cost of five shillings. (2) A Biddell's Patent Oat Mill, capable of cutting or crushing from 3 to 5 bushels of oats per hour. Its construction is of the most simple form, and not liable to derangement, and the labor of working it is very light for one man or stout

boy. There are one or two peculiarities about this mill, which will be interesting to the farmer as well as the machinist. The roller which cuts the oats is on a much superior principle to any thing yet out, inasmuch as the cutting edge is formed of pure steel, which is supported at the back by cast iron. This enables the manufacturers to harden the steel as much as can be done by fire and water, and the cast iron not being susceptible of hardening by the same process, you get the toughness of the soft material supporting the keen cutting edge of the harder metal. Thus a very durable and excellent article is produced, and at a cheaper rate than could be done by the old process of making the cutting barrels of wrought iron, and then case-hardening them, an operation that was attended with much risk and expense. The other process of making them of cast iron, and case-hardening them, produced an apparently good article, but a very worthless one really, as the hardening was only skin deep, and soon wore away. Thus a very superior article has been obtained at a reduced cost. (3) An Oil Cake Breaker, which is a useful and strong machine, for breaking oil cake for sheep and cattle, and is easily worked.

The above combined machine can be had in England for the comparatively small sum of £7 10s. In considering the price, it should be borne in mind that the implements and machines of this extensive and long established manufactory are not only constructed on the most approved mechanical principles, but are made of the best prepared materials, and with ordinary care seldom requiring repairs, and very durable.

By the way, field or horse beans are not raised in this western section of Canada, to any extent. We have seen good specimens grown in the Eastern Provinces. The horse bean is very rich in muscle-forming materials, and is an excellent food for hard working horses, as well as for cattle and pigs. Our summers may in general prove too dry for it; the blossoms of the ordinary Windsor bean in gardens frequently fail to fructify, on account of the sudden heat.—Still field varieties are worth a fair experimental trial. We saw the other day at Mr. Fleming's, seedman, of this city, a sample of excellent small Tick beans, which are highly prized in England, and which he had imported for the purpose of affording farmers an opportunity of trying them in this country.

DAIRY HUSBANDRY.

Mr. J. C. Morton, Editor of the *Agricultural Gazette*, and the best Encyclopedia of Agriculture in the English language, published by Blackie & Sons, Glasgow, has commenced the publication of a series of Agricultural Handbooks; from the one on the management of the Dairy we take the following extracts, which will be found interesting and useful to many of our readers. Mr. Morton has managed to compress a vast amount of sound, practical information in this little manual, relative to the feeding and choice of the cow, the management of milk, butter and cheese, and has embodied the most recent investigations and experiments.

An immense amount of discussion has taken place on the special merits of different sorts of milk-pans. Probably the greatest quantity of milk in this country is set for cream in leaden cisterns about four or five inches deep; the next commonest pan is of brown earthenware, white inside, some twenty-one inches across at the top, and four inches deep or thereabouts, and a foot or more wide at bottom. Vessels of tinned iron of similar shape are also very common for the purpose. Zinc, which is much more easily acted on than tin by the acid of milk, though occasionally used, is therefore not so good a material. Glass milk-pans are much more in vogue; exceedingly clean, as dirt is so much more easily seen on them; they are, of course, more brittle than the earthenware.

Captain Stanley Carr, who farms largely in Holstein, employs these glass pans almost exclusively. He says:—"In my dairy, which contains upwards of 180 cows, the glass vessels have been used for four years;

and I give them a decided preference over all others. Their form is good, being sixteen inches broad at the top and twelve at the bottom; the glass is dark bottle-green, transparent, and perfectly smooth, about one-eighth of an inch thick, and provided with a rounded rim at the upper edge, which makes it easy to retain a safe hold of them even when full. They contain eight quarts, but never receive more than six. They cost eight pence a-piece, and their durability may be estimated by the fact that, to encourage carefulness, each dairy-maid is allowed one dollar per annum extra, as *pan money*, being bound at the same time to pay ten pence for each one she breaks; yet hitherto no girl has broken to the extent of her dollar. It is self-evident that acidity cannot be communicated to glass; and the ease and rapidity with which they are cleaned, requiring merely to be first washed with lukewarm water, then rinsed in cold water and placed in a rack to dry, effect a great saving in fuel and labor, diminishing the number of our dairy-maids by at least two." Captain Carr stated that Mr. Thomas Peterson, of Trinity Chambers, Water-lane, Tower-st., London, had undertaken to supply the German milk-pans in any quantity at 2s. each, or at 21s. for the dozen. The earthenware vessels cost about the same price, 1s. 4d. to 2s. a-piece. If made of clear glass, the pans cost 4s. a-piece.

Mr. Duncan, of Bradwell, near Stony Stratford, writes thus:—"When I first took to dairying on a large scale, I laid out £20 in glass pans, because they looked so well in a dairy. On further acquaintance with them I have come to the conclusion that they are the cheapest things (even at 4s. each) that a farmer can use; for they are washed, and wiped, and kept clean with 300 per cent. less trouble than 'leads,'—My glass pans are about twenty inches in diameter: I do not like larger ones. They hold about five quarts each."

Besides these several materials, stone cisterns or vessels cut out of what are called milk stones in Derbyshire, or out of common slate, are in use in some dairies. The milk stone vessels are deemed by those who use them to surpass anything else for their very excellent preservation of milk. The stone-masons of Bidford, near Stratford-on-Avon, work these stones very well by manual labor.

Mr. Love, of Northampton, gives his experience of slate as a capital material for milk vessels. They are from three to four inches deep, two and a-half feet wide, and three feet long, and excavated out of the solid block of slate. They are placed on shelves in the dairy, and considered as fixtures, the milk being drawn off at the bottom, while the cream is left behind in the cavity of the slab. After being in use for fourteen years, no other change in the material was to be observed than that which consisted in a little better polish being given to it by wear. Mr. Love considered such masses of slate as nonconductors of sudden changes of temperature, and as preserving the milk, in consequence, in a state of equable coolness. In this case, no joints are left for absorption of milk and retention of stale animal matter of any kind.

As to the asserted differences in the yield of cream from milk set in different kind of pans, that must arise if the milk in each was of the same depth, from their influence respectively on the temperature of the milk. That a good deal depends on this point is plain from ordinary experience, and especially from that of Mr. Horsfall, of Burly Hall, Otley. It is well known that in very hot weather milk is apt to spoil even before the rising of the cream, and in very cold weather there seems to be a sluggishness in the butter globules, probably owing to their greater specific gravity, which hinders their ascent. Mr. Horsfall on this subject states that by placing his milk vessels in a shallow leaden cistern as a shelf, in which water of such a temperature circulates that in the depth of winter he can maintain a temperature of 55° Fahr. in his dairy, he obtains a higher yield of cream and butter from his milk. The object should be to preserve the milk both in summer and winter at a temperature of 60°, or thereabouts, and this cistern is available for the circulation of cold water in the former season, and warm water in the latter. Mr. Horsfall adds: "By a series of carefully conducted experiments at varying temperatures, I am of opinion that a correct scale of the comparative yield of butter at different temperatures might be arrived at. As thus:—from a very low degree of temperature little or no butter; from a temperature of about 38°, 16 ozs. from 16 quarts of milk; ditto 45°, 21 ozs. from 16 quarts of milk; ditto 55°, 26 to 27 ozs. from 16 quarts. This is somewhat beyond the ordinary experience of dairymen.

Let it be added to the above (1), that each day's skimming, or, rather, the cream separated at each operation, at whatever interval it be taken, is placed in the cream-crock, a vessel which may be of earthenware or tin; (2) that at each addition to the store in this vessel, and, indeed, the

oftener the better, the whole is mixed up together by means of a wooden stirrer kept there for the purpose; and, (3) further, that it be shifted from one vessel to another every day, in order to the more perfect breaking up of the cream, and the hindrance of anything like a permanent curding of it; (4) that when the last skimming of the milk is accomplished the remainder of the skim-milk is either placed together in a large wooden tub whence it is drawn for sale, or where it is set for cheese, either by itself or added to the whole milk of another meal, or it may at once be placed among the store of food for the pig; and (5) that as soon as the vessels are emptied in which the milk has been set for cream, they are to be well washed and dried, and placed ready for the reception of the next meal of milk: the washing being done first with warm water, and then with swillings of cold water in the case of glass, earthenware, or tin—and with water and wood-ashes scoured to and fro over the surface, generally with the help of a handful of hay, and abundant swillings with cold water in the case of leaden cisterns. This completes the case of milk and cream management under the ordinary plan.

In Devonshire, however, a different method is adopted. The milk is set for cream in tinned vessels or pans of iron or brass, of more than the common depth of milk-pans; and after twelve hours' standing or more these are placed upon a furnace till the first steam is seen in blisters under it, after which they stand till the milk is cool, and then the cream is collected with a skimmer in the usual way, or it may be even lifted with the hand. It is kept thereafter in the cream-crock for a few days, or until enough is gathered, when butter is easily made from it by "flapping" it, as it is called, with the hand in a tub for about ten minutes or less. In some cases these tin vessels are never moved when full of milk, but placed upon the horizontal flue of a furnace which serves as shelf. After twelve hours' standing the fire is lighted, and the milk heated until the cream blisters, when the fire is withdrawn and the milk cools, and in another twelve hours is ready for the separation of its cream.

To be continued.

AGRICULTURAL SCIENCE AND MACHINES.

The following remarks of that admirably conducted paper, the *Scientific American*, contain much sound sense, and are equally suggestive and important on this side of the boundary line as on the other.

The questions naturally arise: why is there such an ado made about improved agriculture now-a-days? Do we not feed ourselves, and also supply other countries, with large quantities of provisions, and are those not evidences of the prosperous condition of agriculture among us, and the high state to which the science and art have been carried by our farmers? To these, we answer, this subject is of vast importance to our people, because two-thirds of our population are engaged in, or connected in some manner with, agriculture; it is the greatest interest of our country, and ought always to engage the most attention. Another reason why this should excite them in more than an ordinary manner at present, is the fact that in most of the older cultivated districts the crops have decreased, both in quality and quantity. This has caused alarm, and it accounts for the activity among our people to retrieve evils which had been inflicted upon the soil by former unwise and unscientific farming. There are many extensive tracts of country, where wheat was once cultivated with great success and profit, where not an acre of it is now grown; and this is the case with some fruits, also, such as the peach and plum, which are now aliens to the same lands on which they once flourished. It has been proved that, in proportion to the extent of soil cultivated, there has been a decadence of the agricultural products of our country, and this has been caused by improper cultivation and exhaustion of the soil. This fact was formerly not duly appreciated, that the grain, fruits, hay, butter, beef and pork raised on farms, and sold to consumers, represented so much of the fertile soil itself, and that every bushel of wheat or other crop taken from it required to be returned again in some form as constituents, under the penalty of future barrenness. This fact is now universally recognized, and it forms the very foundation stone of agricultural science. Old farms, under proper cultivation, can be made to yield larger crops than new farms; but the best methods of enabling them to do so can only be acquired by experience. The whole science and art of agriculture may be summed up in a few words; it consists in the practice of the most successful farmers; this is the only sure guide for others to follow. Many persons seem to consider "agricultural science" in the light of an abstraction; some-

thing exceedingly subtile and vague, which can only be learned in colleges. But we assure them it is something exceedingly practical; it means nothing more than farming conducted in the best and most systematic manner.

At this season of the year, we call the attention of our farmers to these, the leading ideas which should govern in agriculture. In the mechanical department of farming, it is a gratifying fact that our country is unrivaled; thanks to our inventors, and the encouragement given to them by the protection of patents. No farmer can really be successful unless he employs the most improved labor-saving implements and machines; and to us it is a most certain sign of success and progress to witness the alacrity of our farmers in adopting the most recently patented and improved machinery. Among the most valuable patents issued are those for agricultural implements; they meet with ready sales, and are justly remunerative. Every farmer should commence the season's operations with the best implements he can obtain; they will yield profitable returns for their cost before the year is closed.

Correspondence.

METCALFE FARMERS' CLUB.

METCALFE, COUNTY OF MIDDLESEX,
March 12th, 1860.

To the Editor of the Agriculturist.

GENTLEMEN,—A Farmers' Club in connection with the Branch Agricultural Society has been established here, and the members meet monthly for the discussion of subjects pertaining to agriculture. As the prospects of the agriculturists brighten or fade, so do the prospects of our noble country, and any thing that will tend to foster or promote the interests of the farmer should be looked upon as of great national as well as individual importance. Under these considerations I have sent you a brief report of the discussions that have taken place at two of our meetings. If you can find any thing in them that you consider will be of benefit to our brother farmers, and worth publishing in the *Agriculturist*, I shall, with great pleasure, furnish you with the reports of other meetings as they occur.

Yours truly,

THOMAS MOYLE,
Secretary.

SOWING SPRING WHEAT.

On the 6th of February, the subject discussed was The best mode of preparation of land for sowing spring wheat.

The Chairman, CHRISTOPHER BEER, Esq., R. N., an old resident of Canada, and a successful farmer, in introducing the subject, said,—he had grown more or less spring wheat for twenty years; he had raised the best crops after hoed crops the previous year, by fall plowing and early sowing in spring. Thinks the Fife Wheat is best adapted to this part of the country. As the land is strong and fertile, great care should be taken in sowing not to bury the seed too deep; from 1½ to 2 inches was quite deep enough for germination, and if sown deeper a large quantity of the seed rotted in cold or damp weather before it came up; and on the other hand the roots will run far enough down if the land is well cultivated.

Mr. HAWKEN said, from his experience fall plowing was the best. Notwithstanding the short crop of 1858 he averaged twenty bushels to the acre on pea fallow. He agreed with the chairman in regard to the advantage of early sowing.

Mr. MOYLE said, the subject under discussion, the best preparation for spring wheat, was one of vital importance. In the first place it is coming into general use among farmers, who, a few years ago, hardly raised any, and consequently was almost a new crop to them. And this was in consequence of the belief that the midge did not damage it to the same extent as it did the fall wheat, a belief that his experience fully confirmed. His preparation was fall ploughing after a hoed crop or pea fallow, putting the cultivator length ways of the furrow before sowing, and across after, and he found that the crops came up quick and even, and generally looked well until they were harvested. His crops generally averaged 20 bushels to the acre.

Mr. ABRAYS, miller at Napier, said that farmers should be very careful as to which kind of seed they sowed; as that which grew the largest number of bushels to the acre was not always the best for sale or for milling purposes.

Mr. F. HARRIS said, he had sowed two kinds of wheat in one field, Morden and Fife. The Fife was a good crop, the Morden rusted and consequently was worth nothing.

Mr. THOMPSON said he had very little experience in growing spring wheat, but perfectly agrees with the other speakers in regard to fall plowing and early sowing.

He would recommend plaster in light soils as a top dressing for spring wheat.

Mr. LARGE had sowed spring wheat on sod and had raised good crops. Clover seed is a good preparation for spring wheat if plowed in spring and sowed immediately and well harvested.

SOWING BARLEY, PEAS, AND OATS.

On the 5th of March the subject of discussion was The best method of preparation of the soil for sowing Barley, Peas and Oats.

In opening the discussion the CHAIRMAN said, Gentlemen, in meeting you on this, the second evening of our club, I again urge on you the necessity of our united exertions to diffuse the knowledge we possess relative to husbandry amongst each other. Nothing can be better adapted for this purpose than a meeting of practical farmers, who, from experience, can speak positively on the modes of their own cultivation, and the best methods of raising the different crops usually grown in the neigbourhood. This is not the only consideration. It is absolutely necessary that practical farmers should have a thorough knowledge of the different breeds of horses, cattle and sheep, and the kinds that would be most profitable for the locality in which we live, as well as of the most profitable kinds of grains and grasses, particularly a new kind of grass called Hungarian, which I hope will have a fair trial amongst us. Now where can those things be discussed so well as in a Club of practical farmers, where every one is ready to give every information in his power; and you may depend we are all in need of knowing the improvements science is making in the present day in every department, agricultural as well as others, and we must take advantage of it to keep pace with the times. We must recollect that seasons beat judgment, and not be discouraged by one failure, but persevere, and in the end we shall succeed. The Poet says:

"The seed is sown, no more to man is given,
The grateful farmer trusts the rest to Heaven,"

I find in the cultivation of peas, that the best crops are after oats, grown on grass land, ploughed down in spring, and in the fall well manured and turned under the following spring; cultivated twice, once along the furrow and once across, and as early as the ground is fit. Sow from 2½ to 3 barrels per acre. Harvest early, as the straw of early cut peas is the best feed for sheep, and it also gives time for two ploughings if intended for fall wheat, for which it is an excellent preparation. The scythe is the best way of cutting small tillages, but in large fields the horse rake is the method I use, and if care is taken the peas shaken out will be small in quantity, and the hogs and sheep will soon pick them up. For seed I prefer the small white pea. I have grown great crops of oats, both after wheat and lay grass. Summer fallows are now nearly obsolete, and when I intend breaking up an old pasture I plough down early in spring, sow four bus. to the acre, and harrow well. I sow thick to enable the oats to overcome the grass that comes up at the edge of the furrow, and find at harvest that I have a good crop of oats, and also the advantage of an excellent fallow. If after wheat, I generally manure, sow 3 bus. to the acre, and seed down with clover and timothy. I have sown the potato oat, but find it degenerates in this climate. This last year I sowed the Black Tartarian, and the small white oat; they both yielded well, but as a general crop I prefer the small white oat. My land is a rich marly loam

Mr. MOYLE said he generally sowed his peas on stubble land, plowed the previous fall, and had the cultivator put through across the furrow, before sowing about five inches deep, and after sowing, lengthways of the furrow about three inches, which buries the peas as nicely as if plowed in. One harrowing and a rolling completes the operation. The rolling enables one to pull them with the horse rake, a great saving if they chance to ripen at the same time as other crops. He preferred the small white pea for a general crop, sowed about 3 bushels to the acre, general average from 25 to 30 bushels to the acre. Land, clay loam Generally sowed about the first week in May. Oats he grew sometimes on sod and sometimes on stubble. If on sod, he preferred plowing in spring, and sowing as soon as possible after plowing; if on stubble land, he preferred fall plowing and cultivating twice in spring. Oats, like any other crop, will pay well for cultivation; had raised from 60 to 70 bushels per acre on well cultivated land; sowed about the last week in April—generally speaking the earlier it is sown the better; prefers the Canadian grey oat for a general crop. About barley he could not say much, as his land was not adapted to its growth; had tried it but was not successful.

HOW TO USE BONE DUST.

PRESCOTT, March 25th, 1860.

Editor of Agriculturist:

DEAR SIR,—There are several farmers

in this locality that wish to try the effects of Bone Dust upon their crops, but they want information as to the mode of proceeding. You promised an article in the *Agriculturist*, and they have been looking for it in each succeeding number ever since. Please insert something in your next on the following inquiries:—

1. The way in which Bones should be used, and the quantity per acre?
2. The kinds of crop they are best adapted for?
3. The state of the bones, whether coarse or fine for any particular case?
4. The soils to which bones are best adapted?

Yours respectfully,
W. E.

REMARKS:

We were not aware that we had promised an article on Bones as a fertiliser till we received our respected correspondent's letter. We will shortly treat the subject somewhat in detail; in the meantime, we submit the following observations for the consideration of the parties to whom our correspondent refers.

1st. Bone dust can be beneficially added to a compost, consisting of farm-yard manure, and earthy matter, incorporating the whole thoroughly together. When applied by itself to drilled root crops, it should be scattered in the drill. Drilling machines may now be procured for sowing seeds, and manures, such as finally ground bones, rape-cake, guano, poudrette, &c., with the seed. The quantity should be varied according to the nature of the soil, and the requirements of the crop. More will be required if spread broad cast than when applied in drills. In the former case say 20 bushels to the acre, in the latter 10 or 12 bushels. If the land is in good heart and manured slightly with other substances, less quantities than the above may be sufficient; otherwise, the amount of bones may be beneficially increased.

2nd. Bones are particularly adapted to Turnips; and may be used for root and grain crops generally. They often have an excellent effect on pastures. Turnips well manured with bones and farm-yard dung, and carefully summer worked, will leave the ground in excellent condition for barley and clover with grass seeds the following spring, without further manure.

3rd. It is not advisable to use bones more than half inch, as they will be a long time in decomposing. For turnips, and such crops as require a quick action of the manure, it is much better to use bones in a state comparatively of powder. In that case a less quantity will be sufficient for the wants of the immediate crop; coarser bones will slowly decay, and afford by degrees a smaller amount of nourishment to a succession of crops. We strongly recommend such as are finely ground.

4th. Bones act with greater power and certainty on light and dry soils, in which they more readily decompose than in cold, wet clays. If the latter soils be drained, bones may be applied to them with advantage. No kinds of manure produce their maximum effects on wet land.—Eds.]

EACH OF US MUST DO ALL WE CAN FOR CANADA.

To the Editor of the Agriculturist.

Sir,—The farmer is doomed to toil and get his bread by the sweat of his brow, and is exposed to the heat and cold, and after all his toil in plowing and sowing, his hopes are often blasted by the ravages of the midge, the worm, the rust, or the untimely frost. Who then would be a farmer? exclaims the young lad of Canada? True, the calling of the agriculturist has a very dark side to it, but then it has two sides, and having viewed the one we will now turn over and look at the other. We have seen that the farmer has to toil, and who has not? Are any free from this decree? We think not. Let us enquire of a few among the professional and mechanical classes. Perhaps, my lad, you would like to be a lawyer, and do you think lawyers have no toil? Why, it is all toil with them, from the time they commence their preparatory studies, until the end of their practice. Moreover, the lawyer has to depend on man for his success, while the farmer's dependence is on his God, whose is the earth, and the fullness thereof. Then how few lawyers succeed in their practice

and become wealthy, while the majority of farmers, if they do not amass riches, secure to themselves and families ease and comfort. But another boy is saying he would rather be a merchant; and think you is there no toil here? If your labour will not be so heavy, it will be monotonous, tedious and endless; you will never be free from anxiety either about purchasing or selling of goods, meeting of bank payments, or from fear of loss by water, by fire, by bad debts, and by thieves. Another young aspirant is heard to express his wish to be a doctor. Very good, the healing art is both useful and respectable, but not free from toil, very far from it; if you will be a doctor make up your mind to work hard, day and night, summer and winter, in the wet and in the dry, in the heat and in the cold, and often without remuneration, not even thanks, and worse than all, censure is often heaped on the wisest and best of physicians, who have been called up out of their midnight slumbers. Not so with the farmer, he rises at his pleasure, takes his meals regularly, has none to hurry him, and at evening retires to rest without a fear of being aroused by any midnight cries; if he has toiled through the day he can now repose unmolested. But other lads may be thinking of the mechanic, and coveting his position; but you need not, for with him it is all toil or no success, when he lays down his tools his work stops. Not so with the tiller of the soil, for while he reads, or visits, or sleeps, his grass and grain are all growing, and should he by sickness be unable to go into his field, his crops are maturing, and thus enriching him day by day.

Then there is no class of men so healthy and longlived as farmers, none who have more time for visiting with their friends, none suffer so little in times of epidemics or by failure of crops. The farmer secures a sufficiency for himself and family first, and if any be left then others may share with him. Then few farmers fail of success, and if they would economise or manage better their prosperity would be still greater.

From the foregoing remarks we may infer that there are none so happy, healthy and independant as farmers. Young men believe this, and make up your minds to be farmers.

Every thing that can be done ought to be done to encourage our sons to be agriculturists. Furnish your farms with good stock, such as fine well-bred cattle, sheep, and hogs; keep good horses, and teach the boys to feed, clean, and drive them. It costs no more to keep good stock than to keep poor, and the good will always command a better price and ready sale. Let all your farm tools be of the most improved kind and in good order. Have all your out buildings convenient and comfortable. Supply your family with good agricultural journals, so that they may learn what others are doing—fit something for the agricultural shows. All this will give a taste for farming, and there is little fear but the boys will like the calling.

Yours truly,

STEPHEN KING,

Wentworth, Ryckman's Corners, C. W.

Mr. EDITOR,—I must add a few more thoughts; first on the subject of ploughing matches. These are of long standing—in England and Scotland they are numerous, and they generally excite a great deal of interest in the locality in which they are held, and cultivate a great fondness for plowing among the youth, and this is the effect they have had in this county. At the last match, held by the Pioneer Plowing Match of the South Riding of the County of Wentworth, which came off lately, there were over fifty entries, and several hundred spectators; the prizes were numerous and some of them very valuable. The first for iron ploughs was a splendid set of harness, valued at seventy dollars, and the gift of Z. Choate, Glanford, and James Jolley, Saddler, Hamilton; and the first prize for wooden ploughs was a handsome iron plough, valued at forty dollars, the gift of a gentleman here. I hope other public spirited gentlemen who are anxious to encourage and help on the farmers will go and do likewise. Why do not our agricultural societies give one prize to such matches? I think they ought to do so, and would it not be a wise outlay of a little money on the part of our Government. I fear a worse use is often made of the public funds. At these matches heretofore, we have had three classes, viz: Men with iron ploughs and men with wood ploughs, and the boys all under twenty-one years of age. For one, I would like to see some change in the management of these matches; that is, I would make four classes, two among the men and two among the boys. Another change that I would suggest is, the making of the prizes the same in all the classes; that is, the wood ploughs should have as good a prize as the iron ploughs, and the boys in both classes as good as the men. What is the object of these matches, but to encourage good ploughing, and to make farming a science, and to enlist the youth of our coun-

try in this primitive and honorable calling? Then why give the costly prizes to the men, and the cheaper and smaller ones to the boys. If any difference is to be made, let the youth have it, but I say make all the classes equal. The boys classes should be divided thus: all under eighteen years of age plough together, and all over eighteen and under twenty-one. Boys seldom go to the match until they are fifteen years of age. This will give them three years before they are eighteen, and three after eighteen, before they join the men. Let the boys have their choice, either of wood or iron ploughs. Another change I would like, is the fixing of the time in which the work is to be done. I do not believe in awarding a prize to a man or a boy who has occupied two hours more than he ought to have done in ploughing a half acre of ground.

I hope the directors of ploughing matches will give these views their consideration.

S. K.

THE COMPARATIVE COST TO THE FARMER OF RAISING TIMOTHY SEED AND CLOVER SEED.

To the Editor of the Agriculturist.

Will some of our more experienced farmers give us the results of their observations in these matters? Timothy seed can generally be purchased for less than half the sum paid for clover seed; is this difference of price, caused by the difference of cost in the raising of the latter? If not, then tell us what it is that causes the difference in the price of these two sorts of seeds. To us it appears, that a bushel of clover seed can be raised with as little cost as a bushel of Timothy seed. First, you can raise a heavy crop of clover hay in the same season, and off the same ground where you get your clover seed. I doubt not but you can get a bushel of Timothy seed off a less quantity of land than that required to raise a bushel of clover seed. But taking the clover hay into account, I am quite of the belief that the clover costs us no more than the Timothy. Then where you raise your Timothy seed, you have no fall pasture. Again, your clover leaves the land the better; but is it so with the Timothy? does *it* not leave it greatly impoverished? These are considerations worthy of our attention, and it may be profitable to note down these things, and give others the advantage of our knowledge.

S. King,
Ryckman's Corners.

ALSIKE CLOVER.

North Dumfries, 26th March, 1860.

To the Editor of the Agriculturist.

Sir,—In the February number of the *Agriculturist* for 1858, I saw a letter from Mr. P. R. Wright, of Cobourg, wherein he gave a description of a new kind of Clover, called the "Alsike" or Perennial Hybrid Clover, ; he also stated that he had grown it for a number of years, and recommended it very highly, he said if he could only persuade one hundred or even fifty *intelligent* farmers to make a trial of it, and report their success to you, he felt confident that red clover would soon be numbered among the grasses that were in Canada. Well, having some confidence in a Canadian gentleman's recommendation, I determined to give it a trial, and I would now report with what success to you. In the month of April, 1858, I procured four pounds of the seed, from Mr. Fleming, Toronto, that being all he could spare me, I sowed it in a small field containing about one acre that was sown with Barley. Not being accustomed to sow such a small quantity to the acre, I sowed it rather thick, and only got it to go over three-quarters of the acre, the other quarter I sowed with the common red clover, so that I had a fair chance of comparing the two. I give the preference to the Alsike by a great deal; it will make better and finer hay, and from what I have seen of it for the two past winters, I think it is a Clover that is going to stand the winter better and not be so liable to be thrown out of the ground by the spring frosts as the red, a quality that I consider one of its best recommendations in this part of the country, where the red clover is sometimes completely killed out by the freezing and thawing of the ground in the spring. I did not cut it until the seed was ripe, which was on the 19th July, 1859.—There was at least two tons of hay from the three-fourths of an acre, which I consider a good yield, when the frosts of last summer are taken into account. It has two things at the present time against its not being more generally introduced, the first is, the little that is generally known of it in this country yet—the second is the high price of the seed; but as it becomes better known, I am satisfied the demand for it will increase. I believe I am the only one in this part of the country who has cut a crop of the Alsike the past year, but I believe there are a number of others who seeded down small patches last year. I also seeded another acre in 1859. I in-

tend to sow more largely of it this spring, so that Mr. Wright will see that it is working its way. But, Mr. Editor, I have spun this out longer than I intended, and would only request that others, like Mr. Wright, would go and do likewise. Wishing every success to the *Agriculturist*.

I am, Sir,
Your obedient servant,
JAMES WILSON.

[We shall be happy to hear again from our esteemed correspondent on the results of his farming experience. The Alsike Clover has given satisfaction in this Province, so far as we have received information. It is much prized in Scotland and the north of England, and is unquestionably a hardy and prolific variety. Mr. Fleming, seedsman, of this city, keeps it in stock, and has sold of it during the past two seasons some 800 lbs. By saving the seed in sufficient quantities in this country, the price may be reduced; but it can never be brought so low as red clover, from the circumstance that the seed is smaller and less abundant in yield.—EDS.]

Agricultural Intelligence.

COUNTY OF GRENVILLE AGRICULTURAL SOCIETY.—We have much pleasure in stating, on the authority of a local correspondent, that the Grenville Society have adopted a very effective design, by Mr. Sims of Prescott, for a permanent Exhibition Building; and that the contract is already taken. The building is to be erected on the grounds belonging to Wm. Ellis, Esq., the indefatigable President of the Society, and it is to be completed in time to be occupied at the Fall Exhibition.

From the advantageous position of the town of Prescott, and its contiguity to Ogdensburgh, and that section of the State of New York, our friends in Grenville may fairly calculate, by proper management, on having Annual Exhibitions that will be numerously attended, and productive of a large amount of good. We trust that other societies will follow the example.

PROVINCIAL AND STATE EXHIBITIONS FOR 1860.

UpperCanada at Hamilton, September —, (precise time not yet determined.)

Illinois, at Jacksonville, Sept. 10, 11, 12, 13, 14.

Indiana, at Indianopolis. Oct. 2, 3, 4, 5.

Iowa, at Iowa City, Oct. 2, 3, 4, 5.

Kentucky, at Bowling Green.

New York, at Elmira, Oct. 2, 3, 4, 5.

Ohio, at Dayton, Sept. 25, 26, 27, 28.

Vermont, at Burlington, Sept. 11, 12, 13, 14.

Wisconsin, at Madison, Sept. 24, 25, 26, 27.

REFUSE FISH AS A MANURE.—In his valuable "Treatise on Waste Manures," *Hannan* very truly says that in some places fish are so very abundant that their offal and refuse may be procured in large quantities, at very little cost. In such cases it should always be used as a manure. All matters which have had life, it is said, will furnish matter for future life; and fish as an animal body, is rich in nitrogen, the most potent fertilizing element. Johnston says that its muscular parts are nearly identical in constitution with the lean of beef, and blood. But flesh contains in thirty pounds as much nitrogen as are contained in 1,000 pounds of manure, and blood a similar quantity in 32 pounds. In the practical experiments of Professor Hermbstadt, blood was equal to night soil; each giving a produce of fourteen times the seed sown, being the highest results obtained from any manure.

The bones of fishes, as they are composed of nearly the same kind of ingredients as those of land animals, are also of great use, while the *fat* they contain is of itself a good manure. Mr. Mason, of Clinton, according to Lord Spencer, found that forty gallons of oil in compost with 120 bushels of earth, gave 23 tons, 5 cwt., 6 stone of turnips. The late Dr. Hunter, of York, found equally good effects from a compost of oil, earth and ashes. Fish, therefore, of every description, as it is composed of three ingredients, each of which is a powerful fertilizer, must be of great value to the farmer, especially when it can be obtained without much expense. The best way of using it is as a compost with earth or other vegetable matter. The fisheries of Michigan annually afford vast quantities of offal and refuse which might be applied to the soil with the greatest advantage. Another consideration with regard to fish is, that if we carry one thousand tons of it to our land, we are not robbing any other soil. Fishes being the produce of the water have not received the ingredients of their composition from the

soil; and every crop raised from this manure is an extra production, obtained from a new source, and made of new materials. When we make the water fertilize the land, there is no limit to the improvements that may be effected.—*Detroit Tribune.*

Mangel Wurzel.—I now feel confident that root crops, such as beets, carrots, and mangel wurzel, can be grown as good in this country as in England. I have grown the mangel wurzel, the last five years, with good success, increasing them in size every year. Last spring I planted a piece of ground with the Long Red, and the Yellow Globe mangel wurzel, in rows two feet apart, and one foot in the rows. As soon as the weeds were an inch high, I gave them a good hoeing, which kept the weeds down for a considerable time. I thinned them to one strong plant in each foot,—another good hoeing was all they required. I had the lower leaves taken off, and given to the cattle, which I consider would pay for the hoeing. When they were taken up in the fall they weighed 23,946 pounds. There were hundreds of them from 9 to 12 pounds each. The piece of ground they were grown on measured 38¼ rods,—this yield would be about 48 tons to the acre,—which, at 25 cents per 100 pounds, would be $240. The above distance would be rather close between the rows for field culture. It is quite a mistake to plant closer than the above to obtain large roots. I planted the first two years, nine inches in the rows, and the roots were smaller. One great cause of failure in this country is, we do not hoe in time, but let the weeds get too strong, which takes double time, and the work cannot be well done. I hope my statement will encourage those that never tried root culture, to commence this spring, and report progress in the *Rural.* J. C. —*Rural New Yorker.*

Horticultural.

GARDEN MEMORANDA FOR APRIL.

"As Nature feels the sun's life giving rays,
And genial showers now mark the lengthen'd days,
Buds, and sweet blossoms, redolent of spring,
To meditation, soothing moments bring."

This is the first spring month for our Canadian climate, and the most important for gardening operations. If the weather is favorable, and the ground in good condition for work, no time should be lost in getting it well prepared for the early spring crops, for the first thing to be done relating to sowing is the proper preparation of the ground. It may be more or less fine, according to the sort of seed to be sown. *Beans* and *Peas*, of course, do not require the earth to be so fine, as small seeds do; still, the finer, the better, for everything; for many seeds, if not all, do best when they are actually pressed by the earth in every part. Never sow when the ground is wet, and if you even dig ground in wet weather, you make a sort of mortar of it, so that it binds when dried by the wind or sun. The following is a brief list of seeds that may be sown as the month advances:—

Blood Beet.

This esculent is universally cultivated, and is used for culinary purposes in all stages of its growth. The varieties most essential for the table are the *Early Blood Turnip*, and the long smooth *Blood*. Beets require a mellow soil, moderately rich, and well pulverized to a good depth. Draw drills about a foot apart, and one inch deep, sow moderately thick; when the plants are up strong, thin out, leaving them six inches apart.

Brocoli, Cauliflower, and Early Cabbage.—Plants sown in the early part of this month, will be ready for planting out by the first week in May. To grow these to perfection, the ground requires to be highly manured, and well cultivated.

Carrots may be sown any time during this month, and as late as the end of May. The most suitable ground for growing carrots is a deep rich soil, that has been well manured the previous year. Sow in drills one foot apart and one inch deep; when the carrots are up, thin them out, four inches apart, and keep the ground clear of weeds.

Early Peas may be sown as soon as the ground is in condition for working. The situation should be sheltered from the north, and fully exposed to the sun during the middle part of the day. The soil for Peas should be moderately rich. The early varieties, such as the Early Kent and Dan O'Rourke, may be sown in drills about three feet apart. They grow about two and-a-half to three feet high, and will require but short sticks to keep them up. Bishop's Long Podded, and Spanish Dwarf are suitable varieties for planting around borders, as they only grow from one foot to eighteen inches high.

Successive crops of Peas may be sown every two weeks to the middle of June, and for general crop after the early ones, we would recommend the following:—

Dwarf, blue, Imperial, 2½ to 3 feet high.

Champion of England, 4 feet high.
Missouri Marrow Fats, 4 feet high.
With several varieties of the Wrinkled Marrows.

Radish.—*Long Scarlet, Long Salmon, White and Red Turnip,* may be sown at intervals during this month, and up to the middle of July; sow on a light soil, and thin out the plants 2 inches apart.

Celery.—This vegetable is much esteemed as a salad. It requires considerable attention to grow it to perfection. To have early celery the seed requires to be sown in a hot-bed in the month of March; for winter celery, the seed may be sown any time before the middle of May. Sow on a small bed of fine rich earth—beat the bed down with the back of the spade; sift a little fine earth over the seed; shade the bed with a mat or board until the plants begin to appear. Celery plants ought to be picked out into a nursery-bed as soon as they are two or three inches high. Cut their roots and tops a little before planting; water them well and shade them from the sun until they begin to grow. Let them remain in the nursery-bed about one month, after which they will be fit to transplant into the trenches. The best sort of soil to grow Celery in is deep rich loam, and in an open part of the garden. Mark out the trenches a foot wide and three feet between each trench. Dig the trenches one foot deep, laying the earth equally on each side. Put three or four inches deep of well-rotted manure into the bottom of each trench; put a little of the surface soil over the manure; dig it well up, incorporating the soil well with the manure; dress the plants by cutting off the long leaves and the ends of the roots. Plant in single rows along the centre of each trench, allowing six inches between each plant. Water them well, and shade them from the sun until the plants begin to grow. In earthing up Celery great care should be taken not to cover the heart of the plant.

Parsnips are an excellent vegetable, and require to be sown as early as the ground will admit. Cultivate the same as directed for *Carrots.*

Onions should be sown as early in the month as possible, which will give them time to make good bulbs. The Yellow and Large Red are the best for a general crop; the ground should be well prepared, by digging in plenty of well-rotted manure. Sow in drills one inch deep, and one foot apart. When the young Onions are up, thin them out to the distance of three inches apart.

Spinach is a useful vegetable, and will come very early for use if sown on a very rich piece of ground. Sow in drills one foot apart.

The Tomato is so widely cultivated, and so extensively used that it is now regarded as almost indispensable to every garden. There are several varieties grown, but we consider the medium Red Tomato the best for all purposes. To raise them to perfection in Canada, the seed should be sown in the early part of this month on a slight hot bed. When the plants are well up, they should have abundance of air during the middle of the day. The plants should not be set out into the garden before the middle of May, as they are liable to be killed by the spring frosts.

Hot beds now in operation will require constant attention to giving plenty of air during the day, and shutting them close up at night; but if the heat of the bed is strong, the sashes will require to be raised a little during the night. When there is a sharp cutting wind, it will be advisable to hang a mat over the opening, in such a way, that while the plants in the bed will not suffer from the blast, there may be ample oportunity for the admission of fresh air. No effort must be spared to keep the plants stout and healthy, the stems strong, and the leaves of a fine green color.

THE FRUIT GARDEN.

Gooseberry bushes require to be well pruned in; that is, cutting in the last year's wood within two inches of the old wood. This makes the bushes spur, and on these spurs the fruit is produced.

Currant Bushes require the shoots thinned out, to allow all to stand free and clear of each other, and shorten back the young wood from three to six inches of the preceding years growth.

Raspberries will require to be well pruned in, taking all dead canes out, removing all straggling roots, leaving three or four of the strongest canes to form a stool; fork in plenty of manure, and mulch the ground well over with the same.

Apple, Pear, Plum and Cherry trees not pruned last month, should now be finished as soon as possible. Where large branches are cut off, the wood should be covered over with a mixture of cow dung, wood ashes and lime.

Strawberry beds will be benefited by having a good supply of well-rotted manure forked in between the rows. Where new plantations are to be made, the soil should be well prepared by digging in abundance

of well-rotted manure to the depth of eighteen inches, and the exposure must be entirely free from the shade of buildings and trees.

Our remarks on the Flower Garden must be deferred till next number.

J. F.

DWARF PEAR CULTURE IN CANADA.

From the Rural New Yorker.

With your permission, I would like to avail myself of the extensive circulation of your valuable paper in Canada, to say a few words to my own countrymen on the subject of Dwarf Pears. With our characteristic patience, we have been waiting to see how you succeeded; and now, if I may judge by the number of the trees of late ordered from the nurseries, we are going to try our hand at growing dwarf pears. It is my wish that, as far as possible, those who are thus trying to supply themselves with good fruit, should be saved from needless disappointment—and with this view, seek to make to them a few suggestions through your columns.

The dwarf pear is certainly one of the greatest boons in the fruit line that art has given to man. It enables us, in from three to five years, to enjoy, upon our own premises, the finest and newest varieties of both Europe and America; and in most instances produces fruit of finer size and higher flavor than the pear stock. In fact, the time is at hand, when no one who has sufficient taste to endeavor to make his home attractive, will feel satisfied until he has planted an assortment of dwarf fruit-bearing trees, which will contribute so much to the adornment of his grounds, while ministering so abundantly to the delicacies of the table.

I said the dwarf pear tree is the gift of art; and it is by remembering this simple fact, and treating it accordingly, that it can be successfully grown and made to bear its yearly burden of delicious fruit. *Nothing valuable without labor*, is a maxim that has its application here. The man who is not willing to bestow the requisite care, ought never to plant.

First, then, as to where to plant. Great care should be exercised in selecting a suitable place in which to plant dwarf pears. It should be a rich, warm, dry spot, where no water stands; and where, if you dig a hole two feet deep into the ground at any season of the year, water will not remain in it for more than twenty-four hours. If the soil be not thus drained naturally, it should be thoroughly underdrained. The best soil is a strong clay loam; yet any soil that will yield good corn or potatoes, may be used. If, however, it should be very deficient in clay, and such earth can be procured, a liberal dressing will be found highly beneficial.

Then, in planting, let it be done carefully. Spread out the small roots and fibres in their natural position, and pulverize the soil well as it is placed among and over them—settling it, if need be, with water, so that it may come closely in contact with the smallest roots. It is a tree, not a post you are planting. *Let no manure be placed with the soil among the roots.* It is very injurious. Many, anxious to make their trees grow rapidly, have committed this error, and killed them. Bury the stock in the ground up to the place where the pear bud was inserted, but not deeper. The quince, on which the pear is worked, is liable to the attacks of an insect known as the borer, but these are entirely prevented by burying the quince portion below the surface. If planted deeper, the pear often throws out roots, thereby depriving us of the advantages of working on the quince.

After the tree is planted, a mulch or covering of leaves from the forest, spread on the surface under the tree, will help to keep the ground moist and at a uniform temperature, thereby greatly promoting the growth of the tree during its first summer. Coarse manure is sometimes recommended, but the rains often carry down a solution too strong for the newly transplanted tree, and on this account, if leaves can not conveniently be had, sawdust, chopped straw, moss, or spent tan, would be preferable to manure.

And now, it is just here that so many seem to think that their work is all done; that henceforth the trees will care for themselves and their master too. It is a great mistake, from which has resulted much of the disappointment that has been experienced in the growing of dwarf pears. In truth, it is just here that the labor really begins. The trees are well planted in a warm, thoroughly-drained, fertile soil, and in a few days they will begin to grow. But about the same time the weeds will begin to grow also. These must be kept down, perfectly subdued, and *the soil kept mellow by repeated cultivation;* and that not only during the first summer, but during every subseqnent summer while the trees stand. The cultivation should not be deep; not by spade or plow, lest the roots be cut

and torn; but with the cultivator or hoe, so that the surface may be kept mellow and the woods destroyed; and that not for a little circle just around the tree, but for a radius of at least ten feet.

Again—*the trees must be fed.* And that they may be supplied with a suitable quantity all the time, they should receive an *annual* dressing. The best fertilizer I believe to be a compost of well-rotted barnyard manure, leaf mold, and charcoal, of which the manure forms two-thirds; that the fall is the best time to apply it, and the best method of application is to spread it on the surface of the ground. By this means the too stimulating effects of fresh manures is avoided, the roots are protected from the severe and sudden changes of weather during the winter, while the early spring rains carry down the soluble portions into the soil.

Then, *in the spring, comes the pruning,*—and that not once in three or four years, but every spring. The pruning is a point in which many fail, and because of this failure on the part of the cultivator, the trees fail also. It seems to be hard, after taking so much pains to make the trees grow, to cut that fine, thrifty growth away. But the tree is a creature of art,—and as art has given it being, so art is required to keep it in vigor. Those who have succeeded best, have uniformly, every spring, cut back the previous summer's growth so as to leave but three or four good buds remaining on the shoot. It is impossible here to give a detailed description of the best method of pruning. Practice will soon teach an observing man what branch needs to be cut closest, and where to let in the light and air. I have never yet seen a dwarf pear tree that had been pruned too much, and am fully persuaded that, without proper attention to this part of the culture, the trees cannot be preserved in health and vigor, nor the fruit be large and fine.

Then, there is the *thinning out of the fruit.* Some varieties of pear set their fruit in clusters, and these need to be thinned so that the pears will not touch each other. Besides this, there is a great tendency in the dwarf pear tree to bear too much. This must be prevented by taking off a part of the fruit. It is best to do it early in the season, before the pears attain much size, selecting the smallest and the ill-shaped specimens. As to the quantity that should be taken off, I can only say, aim to bring the size of the crop to a just proportion to the size and vigor of the tree. It is harder to screw one's courage up to the right thinning point when pears are to be cut away, than only the branches. But the fruit taken is not so much lost. The nourishment, distributed among so many, would not have been enough to have brought any of them to perfection. Properly reduce the number, and those that remain will be brought to the highest degree of excellence of which the variety is capable. Besides, the tree that is allowed to overbear will soon exhaust itself.

If any, who have had the patience to follow me thus far, think they cannot find time to prune their trees in the spring, to thin out the fruit and keep the ground mellow and clean in the summer, and to give them a good top-dressing in the fall, let them not plant. To such, dwarf pears would only be a disappointment and a vexation. Slightly to change the words of one of your eminent statesmen, the price of good fruit is eternal vigilance.

D. W. Beadle.

St. Catherines, C. W., 1860.

Veterinary.

Cattle Disease in Massachusetts.—Our Massachusetts exchanges come to us with detailed reports of a destructive disease which has made its appearance among the cattle of North Brookfield. Great excitement prevails in the farming community, and the attention of the Legislature has been called to the subject. Dr. Dadd, and other experienced veterinarians, have visited the locality of the contagion, and pronounced the malady epidemic *Pleura Pneumonia.* The Boston *Journal* says that the disease was introduced last summer by a calf of foreign breed, brought from the town of Belmont. It fixes itself upon the lungs, and produces a violent cough, and the lungs are finally destroyed. Some of the cattle attacked with it linger along for weeks; others die in a few days after the attack. None have recovered.—Letters from farmers in North Brookfield, say that the disease is apparently making a clean sweep through the herds in that section, where it has got a foothold. One man has lost ten head of cattle, and has as many more sick. Another man has lost seven, and the best of his herd are sick.—In North Brookfield and New Braintree, the disease is in five or six herds. One gentleman in North Brookfield writes to a member of the Legislature that the disease is of the most alarming character. The calf from Belmont was carried to Leonard

Stoddard. His cattle began to be taken sick, and one after another died. He sold an animal to Mr. Olmstead, and the stock of the latter are all dying. Mr. Stoddard also sold a cow to Mr. Huntington, who has since lost seven cows, and has ten more sick; so of another herd in New Braintree, where some of Mr. Stoddard's stock were sent. If allowed to spread, continues the writer, the disease will cause general destruction. It is a foreign disease, and the same that prevails in Holland at this time. It seems almost certainly fatal. We learn that the disease has entered the herd of the gentleman in Belmont who sold the calf to Mr. Stoddard, and that his cattle are nearly all exterminated.—*Rural New Yorker.*

Ticks on Sheep.—There are various modes adopted and recommended for ridding sheep of ticks. Randall, in *The Shepherd's Own Book,* remarks as follows:—"Ticks, when very numerous, greatly annoy and enfeeble sheep in the winter, and should be kept entirely out of the flock. After shearing, the heat and cold, the rubbing and biting of the sheep soon drive off the tick, and it takes refuge in the long wool of the lamb. Wait a fortnight after shearing to allow all to make this transfer of residence. Then boil refuse tobacco leaves until the decoction is strong enough to kill ticks beyond a peradventure. This may be readily tested by experiment. Five or six pounds of cheap plug tobacco, or an equivalent in stems, &c., may be made to answer for 100 lambs. The decoction is poured into a deep, narrow box, kept for this purpose, and which has an inclined shelf one side, covered with a wooden grate. One man holds the lamb by the hind legs, another clasps the fore-legs in one hand, and shuts the other about the nostrils to prevent the liquid entering them, and then the lamb is entirely immersed. It is immediately lifted out, laid on one side on the grate, and the water squeezed out of its wool. It is then turned over and squeezed on the other side. The grate conducts the fluid back into the box. If the lambs are annually dipped, ticks will never trouble a flock."

Another mode, and one successfully adopted by one of our correspondents, is to feed the flock sulphur. His views are thus expressed:—"When sheep are fed salt, (which they should have often,) mix common sulphur with it thoroughly, so as to give each sheep a common sized teaspoon full, and by the time you have given them three such portions, you will find the ticks have taken a furlough, and left for parts unknown. This is the cheapest remedy I have ever found, and I am satisfied that if sheep are fed sulphur once a month, in this manner, through the year, they will never be troubled with ticks, and it will conduce to keep sheep in a healthy condition."—*Rural New Yorker.*

Arts and Manufactures.

Corn Stach.—This being an exclusive American manufacture, we find nothing said about it in Dr. Calvert's Lecture; we will therefore supply the omission with a brief description of the process. As corn contains considerable oil, it must be treated somewhat differently from wheat. It is therefore first soaked in the vats in a warm alkaline solution. Some manufacturers never permit fermentation to take place in soaking, to facilitate the separation of the starchy from the fibrous elements, while others allow fermentation to take place, as in the wheat starch manufacture. After this is properly effected (which requires from eight to fourteen days), the corn is ground between common grist mill-stones; from these it passes to rotary screens where it is washed with a stream of water, when the starch flows out through the meshes, and the grain hulls are left behind. The water containing the starch is then pumped into settling cisterns, and some dilute caustic alkali is added and all thoroughly stirred. The alkali causes the fibrous particles of the corn to separate from the starch and settle to the bottom. The starch liquid is then drawn off by siphons, into perforated wooden boxes lined with cotton cloth, from which the water gradually flows out and leaves the starch behind. Settling raffles (a series of inclined, narrow boxes connected with one another) are also used, and by the liquid running over an extensive rippling surface in these, more starch is thus deposited, upon the same principle that streams, in running over pebbly bottoms, deposit more mud and impurities than when flowing smoothly along. It is very remarkabte that in the settling cisterns the starch exhibits polar attraction, that is, it gathers in bunches, as metallic oxyds aggregate in the act of crystallization; the localities being called "spheres of attraction."

There are vast quantities of starch manufactured in this country, but some of it is of very inferior quality. This is owing to the want of skill in the manufacturers. Good starch should not only be of a clear

white appearance, but should so stiffen muslins that they will possess considerable elasticity. A linen collar, for example, when stiffened with good starch, will not, when folded over, crack, and exhibit brittleness, but will exhibit a retractive force and endeavor to assume its original form. A great many manufacturers of corn starch, while they have succeeded in obtaining a product of a good appearance, have not succeeded in making it of a good stiff and elastic quality. There exists a prejudice against corn starch in the minds of bleachers, calico-printers, and cotton manufacturers who use large quantities of it; they believe it is not suitable for their purpose. There are some manufacturers who can make good corn starch, and the time may come when wheat starch will be as scarce as that made from rice, which is now only manufactured for dressing fine lace.

About ten years ago there was a great excitement caused by the supposed large profits obtained in the manufacture of all kinds of starch, and as a conseqence a great number of companies were formed in various parts of the country; and starch factories sprung up like mushrooms. But owing to the want of skill and experience on the part of those chosen to conduct them, the greater number of them soon failed, and one of them (in Buffalo, N. Y.) which for the building and machinery cost over $100,000, was sold a few weeks since for $15,000. To conduct the starch manufacture profitably, about 23 pounds should be obtained from a bushel of grain, but owing to a want of knowledge of the fermenting process, many manufacturers fall a very long way below this produce. They permit vinous fermentation to take the place of the acetous, and considerable of the starch is thus converted into dextrine and passes off as waste. It requires a very critical knowledge of fermentation to conduct the corn starch manufacture successfully.—*Scientific American.*

New Building Stone.—A good sand or freestone, easily worked, of a favorable color, and possessing strength and durability, is very desirable for building purposes in our cities. There are very few sandstones that are suitable for the construction of houses; Connecticut, New Jersey, and New Brunswick furnish all that are used in New York. None of these equal granite or Westchester marble in strength and durability, but they are much cheaper. Last week we examined a very beautiful specimen of building sandstone, obtained in the township of Esquesing, C. W. It exists in a mountain in four-feet layers, and the formation is at last 250 feet deep, and can be easily quarried. It is of a very soft drab color, is said to be very durable, and can be laid down in this city for 35 cents per cubic foot. The quarry is not far from the Grand Trunk Railway, and is, by land and water, distant about 489 miles from New York.—*Scientific American.*

Miscellaneous.

Extraordinary Cow.—The polled Angus cow, bred by Hugh Watson of Keillor, shown at the Highland Society's Show at Aberdeen in 1858, where she had a medal awarded to her, died at Keillor on Friday, July 1, 1859, at the wonderful age of thirty-five years and six mouths. This old cow was the dam of twenty-five calves, all of whom carried prizes at different competitions in Scotland, England, and Ireland, and they and their progeny are now spread over many countries and climes. The old cow retained her fine shape and rich mellow quality till she arrived at the mature age of twenty-eight years, when she gave up breeding or giving milk, but continued active, and picked up her food along with the other cows of the herd, never having got any food beyond the common run of the farmyard. She gradually fell off for the last two years, till she became a most striking picture of old age and infirmity, but gave up gathering her food in the field only two days, when an excellent photograph picture of her was taken by Mr. Jackson of Perth, and she then lay down and died, never before having been an hour ill, such was her robust constitution and healthy habit.

How General Moulton got a Gore of Land.—New Hampton was incorporated Nov. 27, 1777, and then contained what is now known as Centre Harbor. In 1763, General Jonathan Moulton of Hampton, Rockingham County, having an ox weighing 1400 pounds, hoisted a flag upon his horns, and drove him to Portsmouth, as a present to Gov. Wentworth. He delined compensation, but would like to have granted to him a charter of a *small gore of land* he had discovered, adjoining the town of Moultonborough, of which he was one of the proprietors. His request was granted, and he named the *small gore* New Hampton, which is some seven miles long and in some places not above three wide, which name it retains to this day.—*Portsmouth Chronicle.*

Take Care of your Eyes.—One of the most eminent American divines, who has for some time been compelled to forego the pleasure of reading, has spent thousands of dollars in vain, and lost years of time, in consequence of getting up several hours before day and studying by artificial light. His eyes will never get well.

Multitudes of men and women have made their eyes weak for life, by the too free use of eyesight in reading small print and doing fine sewing. In view of these things, it will be well to observe the following rules in the use of the eyes:—

Avoid all sudden changes between light and darkness.

Never begin to read, or write, or sew, for several minutes after coming from darkness to a bright light.

Never read by twilight, or moonlight, or on a very cloudy day.

Never read or sew directly in front of the light, or window, or door.

It is best to have the light fall from above obliquely, over the left shoulder.

Never sleep so that, on the first awakening, the eyes shall open on the light of a window.

Do not use the eyesight by light so scant that it requires an effort to discriminate.

The moment you are instinctively prompted to rub the eyes, that moment cease using them.

If the eye-lids are glued together, on waking up, do not forcibly open them; but apply the saliva with the finger—it is the speediest dilutant in the world; then wash your eyes and face in warm water.—*Hall's Journal of Health.*

No Right to Endorse.—1. A man has no right to endorse when the failure of the first party to meet his obligation will render the creditors of the endorser liable to loss in consequence of such endorsement.

2. He has no right to endorse for another man unless he make provisions for meeting such obligation, independent of and after providing for all other obligations.

3. He has no right to endorse unless he fully intends to pay what he promises to, promptly, in case the first party fails to do so. Few endorsers prepare for this.

4. His relations to his family demand that he shall not obligate himself to oblige another simply at the risk of defrauding or depriving them of what belongs to them.

5. He should never endorse or become responsible for any amount, without security is furnished by the first party. It should be made a business transaction—rarely a matter of friendship. It is equivalent to a loan of capital to the amount of the obligation, and the same precautions should be taken to secure it.

6. A man has no more right to expect another to endorse his note without recompense, than to expect an insurance company to insure his home or his life gratuitously.

7. It is not good business policy for one to ask another to endorse his note, promising to accommodate him in the same manner. The exchange of signature may have, and usually does have, a very unequal value. It is better to secure him the amount, and exact a like security for the amount of responsibility incurred.

8. It is better to do a business that will involve no necessity for asking or granting such favors, or making such exchanges. It is always safe and just to do so.—*Prairie Farmer.*

Pasturing Meadows.—A statement recently was made in the *Country Gentleman* that 8,540 pounds, or four tons anda quarter of Timothy hay had been raised on one acre. The secret of such production being claimed to be that the meadow or grass land on which it was raised was not allowed to be pastured at any season. A correspondent from Burlington, N. Y., writes that this brings to his recollection that "having some years since been riding with a gentleman in Rhode Island among his numerous farms, and being asked by one of his farmers if he might not turn the cows on a piece of nice pasture: he replied "no, if the cows have not enough pasture where they are, go to work and cut up corn for them." This was strange to me, and on asking him for an explanation, he said he never permitted his mowing lands to be pastured, or rather he never took off the aftermath in any way, and was enabled by this course to cut four tons timothy hay per acre. I once tried this course, and was rewarded by a bountiful crop the next year; but it is too great a temptation for most to resist, to have good pasture and not turn stock on it when they need it. But if we would only sow a few acres of corn broad cast in the fifth and sixth months, say half an acre at a time, for a stock of 15 to 20 cows, at intervals of two weeks, say from 1st of 5th month, (or earlier in some latitudes,) to the middle of 7th month, we should have abundance of first rate feed, and should be able to let our Timothy meadows stand."

Editorial Notices, &c.

THE ORCHARD HOUSE; BY THOMAS RIVERS. NEW YORK: C. M. SAXTON, BARKER, & Co., 1860.

This is a reprint of the English edition, by those enterprising publishers of Agricultural works, Messrs. Saxton & Co., of New York. It is very neatly printed and illustrated; and has in addition to Mr. Rivers's treatise, which has obtained to a wide popularity in Britain, a valuable appendix, containing additional directions for growing trees and vines in Orchard Houses, by Mr. Saunders, the well known Landscape Gardener, of Germantown, Pa.

Considering the failure which has more or less attended the fruit crops of several years past, not only in Canada, but over large areas of the United States, we have in this treatise minute and practical directions for erecting Houses in which the finer sorts of fruits, such as peaches, nectarines, grapes, cherries, pears, &c., can be raised for domestic use with almost certain success, and at a cost much below what we could at all have supposed till we looked into this interesting treatise, and saw what had been effected for the past few years in England. An expenditure, at the commencement, of some two hundred dollars would ensure, with proper management, a supply of the choicer kinds of fruits for domestic use: and there must be hundreds of families in this Province, that would gladly avail themselves of such an opportunity, if they knew how to go about the business. In this little treatise, the requisite information may be had for the small outlay of 40 cents.

While on this subject we beg also to refer to a valuable paper on Orchard Houses, which appears in the Transactions accompanying the present Number, by Mr. Gray of this city.

NORTH BRITISH REVIEW, No. 63; NEW YORK: LEONARD SCOTT, & Co, 1860.

The current number of this able Quarterly, contains its usual number of interesting articles on some of the most important topics of the day; such as: Coast Defence and Rifle Corps; Erasmus as a Satirist; The Silence of Scripture; Austria; Wesleyan Methodism; Ceylon; Fossil Footprints, &c. The Sketch of the Works and Life of the late lamented Dr. George Wilson, Professor of Technology in the University of Edinburgh, will be perused by all who feel an interest in the life and productions of a truly great and good man.

This, as well as the other British Reviews, and Blackwood's Magazine, republished by Messrs. Scott & Co., can be obtained of Mr. Rowsell, of this city, and of booksellers generally throughout the Province.

TO SUBSCRIBERS.—We regret to have to state that we can now only supply a very few copies of the back numbers for the present year. The extent of our edition does not yet warrant the expense of stereotyping, nor, in fact are there the conveniences in this place for doing it. We have therefore to estimate, as nearly as we may, the number of copies which will be demanded, and print accordingly. This year the demand has been greater than we anticipated, and our edition is consequently exhausted, within a very few copies. We shall therefore enlarge the edition with the present number, and reduce the subscription price for the remaining nine months of the year to three quarters of the annual rate; that is, to 37½ cents a copy, with a bonus upon orders for large numbers of copies at the same rate as at present. Or rather, for the sake of the greater convenience to subscribers of remitting in even sums, the bonus will be made somewhat higher than it has been. At 37½ cents, the amount for eight copies will be the even sum of three dollars; and for every three dollars received, we will forward nine copies, commencing with the number of the 1st April, to the end of the year. This will be a bonus at the rate of 12½ per cent

in extra copies, instead of ten per cent, as for the whole year. Nine copies will therefore be forwarded for every three dollars received from this date; eighteen copies for six dollars, &c., and the price for intermediate numbers will be 37½ cents for each additional copy. It is hoped that these favorable terms will be the means of obtaining for us a large additional list of readers before the end of the year.

We are gratified with the success which has attended our publication the present year, and have to thank our friends for their liberal support in taking the whole edition with which we commenced off our hands. We hope to be able to announce the premiums for subscriptions in our next. The making up the accounts will however occupy some time, which may possibly prevent the announcement till the following number.

P. S. Since writing the above our supply of back numbers have been quite exhausted, and we are therefore unable any longer to furnish complete copies from the commencement of the year. As we have a few copies of all the Nos. except No. 4, any persons who have that number to spare will confer a favor by returning it to us, to enable us to make up orders now on hand. We will give two cents for each copy of No. 4, returned in good condition.

Market Intelligence.

TORONTO MARKETS.

Colonist Office,
Thursday, March 29.

There was a good attendance of farmers to-day in market, and the deliveries were as follows:—

Fall Wheat—2,050 bushels, which, being of a superior quality, sold at from $1 35 a $1 37½ per bushel.

Spring Wheat—750 bushels at from $1 a $1 06½.

Peas—4,550 bushels at from 55c a 60½c.

Oats—2,750 bushels from 34½c a 37c.

Barley—770 bushels went off freely at from 60c a 65c.

Rye—Nominal at 70c.

Hay $16 a $17 per ton.

Straw $7 00 a $7 50.

Clover Seed—The market is glutted with clover seed. Good samples sold at wholesale bring $4 50.

Flour—Our quotations of flour are almost nominal. Both buyers and sellers are holding back, and very little is done. Double Extra, $5 50 a $5 75; Extra, $5 25 a $5 50; Fancy, $5 00 a $5 15; No. 1 Superfine, $4 65 a $4 70; No. 2 Superfine, $4 35 a $4 40.

Potatos—25c a 30c per bushel.

Turnips and Mangel Wurtzel $6 a $6 50 per ton.

Butter—Inferior 8c a 10c per lb. Rolls 12½c a 15c; keg 10c a 12c.

Eggs—9c a 10c per dozen.

Beef on foot $5 50 a $6 per 100 lbs.

Sheep—$5 50 a $6 each.

Milch Cows—$14 a $26 each.

Pork—$6 a $6 50.

Hams and Bacon—Dry Salt $7 a $8.—Smoked do. $9 a $10.

Hides—Green Hides 5½c. Sheep Skins $8 per 100 lbs.

NEW YORK MARKETS.

New York, March 29, 1860.

Flour—Receipts 208 barrels; market is dull and heavy; sales of 440 bbls at $5 10 a $5 20 for superfine State; $5 25 a $5 35 for extra State; $5 10 a $5 20 for superfine Western; $5 25 a $5 65 for common to medium extra Western; $5 80 a $6 00 for inferior to good shipping brands extra round hoop Ohio. Canadian Flour—market is dull and unchanged; sales are 300 bbls at $5 35 a $7 00 for extra. Rye flour is steady at $3 70 a $4 40.

Grain—Wheat—receipts none; market is dull, and prices drooping; sales 300 bushels white Kentucky at $1 70; 3,400 bushels white Canadian at $1 58; 4,500 bushels Milwaukee culb on private terms. Rye is quiet at 85c. Barley dull; sales 6,000 bush. State at 80c. Receipts of Corn 1,404 bush.—market dull and declining; sales 1,000 bushels at 70c a 71c for mixed Western.—Oats plenty and dull at 42½c a 44c for Western State and Canadian.

Provisions—Pork market dull and heavy; sales of 850 bbls at $17 25 for old mess; $17 87 a $18 00 for new do; $12 55 for old prime, and $14 18 for new do. Beef quiet and steady. Lard heavy; sales 465 bbls at 10⅝c a 11c.

BUFFALO MARKETS.

Buffalo, March 29.

Grain—Wheat dull, and no sales. Corn also nominal. Oats quiet at 35c.

Provisions dull, at $17 for heavy mess; $16 for light do, and $13 for prime common to choice mess. Beef is held at $7 a $10. Bacon dull, and no sales. Lard dull at 10¾c.

YONGE STREET SEED STORE AND FLOWER GARDEN,

Established 1836.

Fresh Garden, Field and Flower Seeds, for Spring sowing.

THE Subscriber begs to inform his friends and the public, that his stock of Fresh Seeds is now complete, and very extensive, embracing almost every sort of Seed that is adapted to the country.

The stock of Agricultural Seeds is large and well selected, and the vitality of each sort being fully tested, the genuineness of the seeds may be fully relied upon.

Comprising a large stock of:—Spring Wheat, Spring Tares, Tartar and Poland Oats of the most approved kinds; Field Peas, including Golden Vine, and other approved sorts, White and Black Eyed Marrow Fats; Barley, two and four-rowed; Imported Purple and Green Top Swedish Turnip, Imported White Globe do., Imported Yellow Aberdeen do., Imported Six-weeks or Stubble do., Imported Red Round, Red Globe and several other sorts of Turnips; Long Red and Yellow Globe Mangel Wurzel; Sugar Beet and Field Parsnip, Large White Belgian Carrot and Spring Rape; Long Orange, Red, Surrey, and Altringham Carrot; Timothy, Orchard, and English Rye Grasses; Red and White Dutch Clover; French Lucerne, Cow, and Hungarian Grasses, Alsike or Perennial Clover; Yellow and White Millet; Early Potatoes of the most approved sorts; Corn, 8 rowed Early Canada, King Philip, Yellow Dutch, and several other sorts.

Horticultural Books and Garden Tools, Draining Tools, One Horse Ploughs, and Cultivators of all kinds.

The Subscriber has also a full and general assortment of all kinds of Garden Seeds suitable for the country, a catalogue of which, with directions for sowing seeds, can be had gratis.

Merchants and Agricultural Societies ordering seeds in bulk will be supplied at wholesale prices.

Complete assortment of Garden Seeds neatly put up in small papers, with directions for sowing, and sold by the box, containing 150 papers. at very moderate prices.

Twenty packages of Flower Seeds, choice sorts, will be sent free by post to any part of the province, to the address of any party remitting $1, free of postage, or 25 packages, postage unpaid.

JAMES FLEMING,
Seedsman to the Ag'l As. of U. C.

Toronto, February, 1860. 6-t

SEEDS! SEEDS! SEEDS!

TORONTO SEED STORE!

Corner of Front St. and West Market Place.

THE Subscriber in returning his sincere thanks for the partonage so liberally extended to him for the past four years, since commencing the business, would now beg to direct the attention of his friends and the public,to his large and well assorted stock of

FRESH GARDEN, FIELD AND FLOWER SEEDS,

All of which have been procured with his usual well-known care and practical knowledge from parties in Europe and America, personally known to him; he would therefore venture to say that the quality of all his Seeds cannot be surpassed in this Country or anywhere else.

FARMERS and GARDENERS would do well to examine before purchasing elsewhere, for it is their interest particularly to procure the best of seed to be had, and SPURIOUS SEEDS are often offered by unscrupulous parties under pretended inducements, which, if depended on, may prove fatal to crops, on which purchasers depended for a living.

☞ No seed is sold in his establishment without first being carefully tested.

Large supplies of all the leading varieties of the different kinds of seeds, most suitable to this climate, are constantly kept on hand.

Catalogues with full directions for sowing and raising vegetable and other seeds, may be had gratis, on application; and being a practical gardener of 19 years' experience, he will always feel happy to give all necessary information, personally, regarding the mode of cultivation, selection of varieties, &c., gratuitously to any of his customers.

For the convenience of those who wish to stock a small Garden with Vegetables and Flowers, but are unacquainted with the proper quantities for that purpose, he has collections ready put up.

Price of Collection of Garden Seeds, $2.
" " Flower Seeds, 1.

J. A. SIMMERS,
Seedsman,
Corner of Front St. and West Market Place.
Toronto, March 12, 1860. 6-t

West Riding of York Agricultural Society.

THE SPRING SHOW of this Society will be held at WESTON, on Tusday, 24th April. For particulars see bills.

ST. GEO. SCARLETT, *Sec. & Treas.*

Carlton West, March 28th, 1860. 7-2t

Five Splendid Strawberries.

HOOKER–Very productive; large, beautiful, and of unequaled quality.

WILSON'S ALBANY,—Exceedingly productive; fine for market.

TRIOMPHE DE GAND—Immense size; splendid appearance, and *high flavor.*

PYRAMIDAL CHILIAN — Very handsome; productive, hardy, and *good flavor.*

LARGE EARLY SCARLET—The earliest; productive and *excellent.*

As it is impossible to secure all the excellencies of this most popular fruit *in one variety*, we offer the above as comprising, in five sorts, the various points desirable.

We again confidently RECOMMEND the HOOKER, as by far the best for family use, if only one sort is to be planted—combining a greater number of excellencies than any other variety.

☞ All of the above have perfect flowers, and will produce excellent crops, if planted singly or together.

☞ Order directly from the Nurseries, to be sure of the *genuine*—"The Hooker" originated on our grounds.

Money, at our risk.

PRICES—(Securely packed to be forwarded by express):

Per 100 plants of any of the above varieties,.....	$2.00
" 100 plants 20 of each variety,....	3.00
" 500 plants 100 of each variety,...	7.50
" 1000 plants of the Hooker.....	10.00

H. E. HOOKER & Co.
Commercial Nurseries,
March, 1860. *Rochester, N. Y.*

HUNGARIAN GRASS.

This valuable grass was introduced into this neighborhood three years since by our County Agricultural Society, and has given very great satisfaction to all who have tried it. Its ordinary yield is FOUR TONS TO THE ACRE, and in some cases SIX TONS have been cut. Cattle and all kinds of Stock are very fond of it, preferring it to Timothy. Its fattening qualities too are believed to be superior to those of any other known grass.

The Subscriber has obtained a quantity, and will send to any person making a post-paid application, sufficient to sow one-third of an acre for One Dollar, or One Bushel for Five Dollars.

All seed will be sent free of charge.

ARCHIBALD YOUNG,
Treasurer,
Lambton County Agr. Society

Sarnia, February 10, 1860.

SPRING FAIR.

TOWNSHIP OF GORE OF TORONTO AGRICULTURAL SOCIETY will hold their Spring Fair at CLAIREVILLE, on the Third Wednesday in April, 1860, and their Fall Fair at MALTON, on the Third Wednesday in October.

By order of the Board,
J. P. DELAHAYE,
President.

Gore of Toronto, March 19, 1860. 7-2t

AYRSHIRE CATTLE.

PATRICK R. WRIGHT, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young BULLS and HEIFERS for sale. His herd is well known as the best in Canada West, and his terms of sale are liberal.

☞ Full Pedigree of all animals—U. C. Stock Register.

April 2, 1860. 7-6m

YONGE STREET SEED STORE.

CHOICE VEGETABLE & FLOWER SEEDS FREE BY MAIL.

THIRTY SIX VARIETIES FOR TWO DOLLARS.

THE Subscriber, wishing to give parties who reside at a distance an apportunity to test the quality of his Seeds, will, on receipt of $2, free of postage, send free to any Post Office in Canada, 24 Full Sized Papers of VEGETABLE SEEDS, many of them containing half an ounce of seed, and 12 Papers of Choice FLOWER SEEDS, with Descriptive Catalogue and Box included—the seeds to be of my own selection. None but the most useful and desirable varieties will be sent.

JAMES FLEMING.
Seedsman to the
Agricultural Association of U. C.

TORONTO, Jan., 1860.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Advertisements—Five cents per line each insertion.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, APRIL 16, 1860. No. 8.

AGRICULTURAL OPERATIONS.

Although winter may now be said to have finally departed, and we have already enjoyed many delightful days of spring, yet such is the fickleness of our climate, that great care and caution should still be extended to the various domesticated animals of the farm. The sudden changes in the temperature and state of the atmosphere to which we are so peculiarly liable at this period of the year, with the frequent recurrence of a scanty stock of nutritious food for cattle, often tax the ingenuity and anxious thoughts of the farmer, how he can keep his herds and flocks in a good, thriving condition up to the time when his pastures will be sufficiently advanced to receive and support them. Those who have got a reserve of turnips, mangels, carrots or parsnips to fall back upon at this season of the year, will find it much to their own convenience and advantage, and of the greatest benefit to their stock. To newly calved cows, and ewes that are lambing, a regular, though it be a small, supply of such productions, will be found economical and profitable. Breeding ewes and young lambs especially require and abundantly requite the best and most liberal treatment, both as regards food and shelter; as exposure to a few hours wet and cold, such as are certain to occur occasionally at this season, will be sure to injure, if not destroy them. Horses should likewise receive special attention, and be supplied with the best provender, thoroughly and regularly ground, that they may be in proper condition for the arduous spring and summer work which they will have to perform. A few roots given daily to a horse at this season, will wonderfully assist in restoring the tone and strength of his system. Horses fed with a few carrots daily, with now and then a mash or a little cooked food, with good grooming, will seldom be troubled with broken wind, hide bound, or a difficulty in casting their old coat. One of the most prolific sources of heaves is feeding the animal with inferior hay, and giving him large quantities of water at long and uncertain intervals; a practice, though common, that is highly injurious both to the health and appearance of that most useful and indispensable creature.

Land intended for spring crops should by this be got into proper condition. Those who ploughed and furrowed their wet, heavy land in the fall will now experience the advantage. Although we would not recommend the farmer to get in any of his crops before the ground is sufficiently warm

and dry, so as to secure a good conditioned and promising seed-bed; yet we would remind him of the necessity of getting matters in as forward a state as possible. Oats and peas should be got in as soon as the weather and ground will admit; with spring grain that which is the earliest sown, other conditions being the same, will always be better and heavier, and come sooner to maturity. Our late sown grain is not in the ground sufficiently long to produce a good quality; there may be abundance of straw, but the kernel is certain to be deficient in weight, and consequently in nourishing ingredients. The practice of some farmers sowing late is exceptionable. For instance, many will not sow the Fife variety of spring wheat till after the middle of May, not because that kind of wheat would not be better if sown earlier, but by sowing very late, experience has taught us that the crop will be out of danger from the midge. It is of great advantage in this country to get our spring crops to cover and shade the ground before the hot weather sets in. A deep and fine seed bed is also of great importance, inasmuch as the seed, especially the smaller kinds, such as clover and the grasses, will more certainly and uniformly vegetate and mature, and find ample room for extending their roots in search of food and moisture. Under shallow cultivation, although the surface may be tolerably fine, plants will be sure to receive an irrecoverable check immediately after dry weather has commenced.

Carrots and parsnips should now be sown as soon as possible, always of course having regard to the character of the season and the state of the land. Even in this climate, where the important operations of spring work are always crowded into a short space, a week or two of latitude must be conceded. Still we again urge upon the farmer the importance of being early in readiness for the committing of his seed to the earth; as the losses, direct and indirect, arising out of a state of backwardness, are much greater than people in general imagine. Carrots and parsnips should invariably be sown in rows, as by that means they can be more readily set out at proper distances, the ground cultivated during the period of growth and kept free of weeds, and the crop very much increased. No farmer that knows the value of carrots and parsnips,—the former more particularly for horses, and the latter for milch cows,—will be without them. Parsnips being particularly rich in saccharine matter, and imparting no unpleasant taste to milk and butter, as turnips do, are of essential advantage to dairy stock. They are likewise easily grown, and a portion may be left in the ground without detriment all winter, and taken up quite fresh in early spring, when they will be found a most seasonable auxiliary.

The procuring of genuine seed, of good quality, free from the seeds of weeds, is a matter of supreme importance, the theory of which every farmer is ready at once to acknowledge, but in practice unfortunately he too often underrates it. Much, or rather most of the failures experienced of late years in our principal farm crops, have arisen from defective cultivation and impure seed; the latter being a natural consequence of the former. Genuine seed, plump and heavy, is cheap at any price, but seed of a contrary description, which too many for one reason or other seem willing to put up with is dear, *very* dear as a gift. This is a matter which lies at the foundation of any improved system of agriculture; and till more attention is paid to it generally in this Province, and we might add on this continent, our grain and other crops will continue both precarious, deficient and inferior. The selection of pure seed, and carefully preparing it by steeps, &c., as practised with the greatest success in the old country, are among the chief causes of the success and profits of British husbandry. It is satisfactory to know that the remedies for deficient crops, impure and diseased grain, and a host of lamented evils, are to a much larger extent than is

commonly believed, *within the power of every farmer to apply*. Let our farmers but gain a practical belief of this orthodox doctrine, and a new era would dawn upon our general agriculture.

Land intended for turnips, mangels, cabbage, &c., should now be placed under a course of efficient preparation. It is a good practice for these crops to plough the ground deeply with rough dung in the fall, and to cross plough it in the spring, using freely the harrows, and if need be, the roller, in order to get a deep and fine tilth for the seed bed. Ground intended for these crops, in particular, should be worked only when it is dry, as the crop will depend a great deal on the mechanical condition of the soil, particularly during the earlier stages of growth. We would urge upon our readers, therefore, the importance of making the best preparations they can for these kinds of crop, which they will have to sow in the course of next month.

Winter wheat, in some situations, may be much improved by harrowing and rolling, as soon as the ground gets sufficiently dry for such operations, and the plant adequately advanced. A bush harrow, with short blunted tines, is the best form of the implement for this purpose. The improvement effected by these means, followed by genial weather, is sometimes of a very marked character.

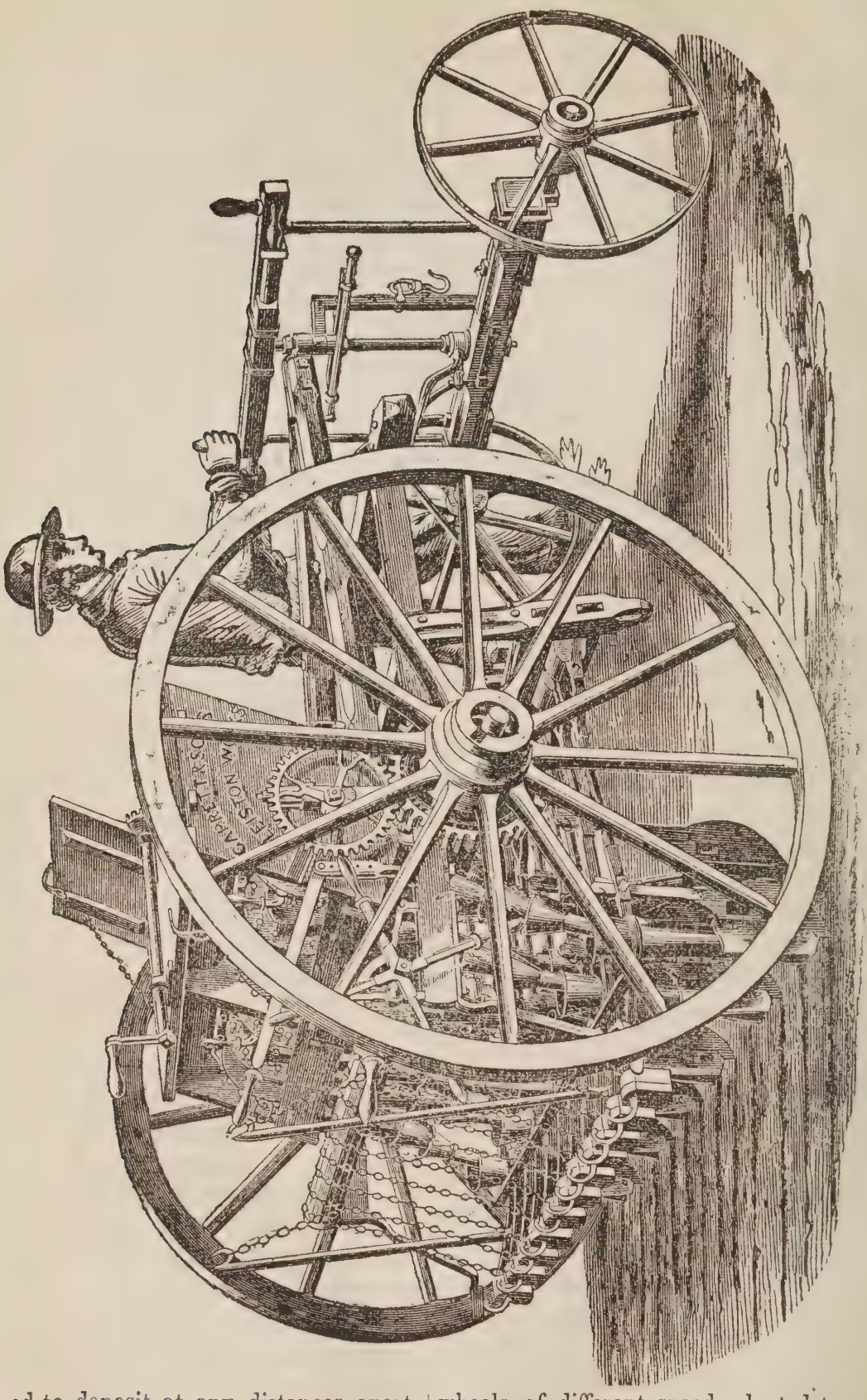
Fences, if not repaired before, should now be put in good order, before cattle are turned out to pasture. The neglect of complying with this precaution in time, is frequently attended by the most serious consequences throughout the grazing season. It is bad fences in spring that are the principal, and we believe oftentimes the only cause, of so many cattle proving breachy afterwards. And the losses and annoyances commonly suffered from the want of timely attention to the repairing of fences, is a matter, alas, with which but too many are practically conversant.

GRAIN DRILLS.

The cultivation of crops in rows, if not of very recent origin, may be said to belong to the most important characteristics of our modern agricultural advancement. With root crops the row system has many decided advantages, which more or less belong to most kinds of grain. The invention and improvement of machines for drilling the different kinds of seeds and grains, have, of late years, astonishingly facilitated this important process, and which, as a consequence, has, of late years, been widely extended. Various kinds of drills for sowing grain, turnips, &c., are now in use on this continent, as well as in Europe, and the results every where are acknowledged to be highly beneficial. In the case of wheat, for instance, there is a considerable saving of seed by using the drill, as compared with the common practice of sowing broadcast, and the seed being deposited at a uniform depth comes up more evenly, and much ewer grains perish in the soil. It has been found in Canada that winter wheat when drilled gets firmer root, and is much less liable to be thrown out by the action of frost, during early spring. Besides, drill crops allow of cultivation, either by manual labor or the horse hoe, during the earlier periods of growth; the advantages of which can scarcely be fully understood or overrated.

The accompanying engraving represents the Improved Suffolk Corn and Seed Drilling Machine, manufactured by the well known firm of Garrett & Sons, Leiston Works, Saxmundham, England. This machine is fitted up with superior wrought iron levers, and several important improvements have recently been made in its construction, tending to simplify the working parts, and better adapt it to all the purposes for which it is required; but the main principle remains the same as has been in use in Suffolk, and made by the same firm, for a great number of years.

The coulters of the Drill may readily be



altered to deposit at any distances apart, wheat, barley, beans, peas, or other grain; and, by changing the delivery barrel, turnip, colewort, mangel-wurzel, and other seeds. The delivery is regulated by cog-wheels of different speed adapted to from 5 to 18 pecks of grain, and from 1 to 6 lbs. of seed per acre.

The arrangements are so contrived as to insure an equally regular delivery when

going up or down hill, as on level ground, by having two cog-wheels of different speeds, one placed on each end of the delivery barrel, either of which may readily be put out of gear, as required, to work the barrel from alternate ends; the small wheel when going up hill, and the large one when going down.

The engraving represents a *side view* of the drill, shewing it with a fore carriage steerage. With this steerage, which is adapted for lands ploughed flat, and acts as a fore-carriage to the implement, a man may keep the rows of grain perfectly parallel with the preceding course of the drill; this is done by a man holding the steerage handle as shown, and keeping the small fore-wheel in the track of the former large one; this, with a little practice, is very easy, and will amply repay by the perfect regularity in the crop, affording the greatest facility for the horse-hoe going between all the rows of plants, and with equal precision, where the drills join in their different courses through the field. The swing steerage, at a less cost, and managed without an additional attendant, is amply sufficient where the drill covers each stitch, or land, in twice, and where one wheel can be kept in the open furrow.

The seed-engine is sometimes made to affix to the grain drill, and is adapted to sow at the same time with spring corn, or may be used as a separate implement for grass seeds, broadcast, or turnips, or mangel wurzels, in rows.

In order to ensure an equal delivery of the different kinds of seed, the box is partitioned off into two departments, one for heavy seeds, such as clover, trefoil, &c.; and the other for lighter seeds; the former being delivered from cups, and the latter from brushes, down the same conductors with it. The required quantities of each seed are thus nicely mixed, and evenly sown all over the land, and may be regulated by turning the screw at the end of the box for lighter seeds, and changing wheels on the cup barrel, for clover, &c.

The price of this Drill varies according to size, from £18, having a spread between wheels of 3 feet 6 inches and sowing 6 rows; to £30, having a width of eight feet six inches, and sowing 16 rows. Messrs. Garrett, manufacture drills at lower prices, adapted to smaller farms, also agricultural implements and machines generally; for which they have won the gold and silver medals, and first money premiums, at the leading exhibitions in Great Britian and Ireland, as well as on the continent of Europe. Their establishment dates back as far as 1778.

THE BARLEY CROP.

The cultivation of Barley is yearly getting of more importance in Canada; and our readers will find the following extracts both interesting and useful. They are taken from a valuable serial work now in the course of publication, by Messrs. Blackie & Son, entitled "*Our Farm Crops,*" by Professor John Wilson, of the University of Edinburgh, who is personally known to several of our readers in consequence of his visit to Canada, a few years since, and who has always manifested a desire to promote our interests at home, which he did with much success at the London and Paris Exhibitions.

TEMPERATURE.

A mean temperature of 46.4 *deg. during the summer quarter,* seems to be for Europe the only indispensable condition for the cultivation of barley; in the inlands of the Atlantic Ocean, and in insular climates generally, a summer temperature of 3 deg. to 4 deg. higher appears to be necessary for its success. Iceland, indeed, where this grain cannot be grown at all, presents in its southern districts, at Rejkavik, a mean summer temperature of 49·4 deg. It appears that there unseasonable rains are the means of preventing all cultivation of cereals. With the exception of districts where such counteracting influences exist, we may consider that the limit of barley cultivation varies between the zones of 46·4 deg. and 49 deg. of mean summer temperature (isothermal,) in those countries

where it is of importance as an article of animal food. On continents 46·4 deg. temperature is sufficient, but on islands generally the increased humidity requires to be compensated for by increased temperature in summer. Barley, however, is cultivated as an alimentary plant as far north as either oats or rye; towards the lower latitudes it loses its importance; its cultivation languishes, and ceases altogether on the plains within the tropics, as it suffers more from intense heat than either of the other cereals. It will grow, too, at an elevation far above the range of wheat cultivation. Humboldt met with barley growing at an elevation of 13,500 feet on the Andes, and in Switzerland it may be seen growing at an altitude of 1,950 metres (6,530) above the sea-level; while in our own country we see it cultivated in many districts where wheat cannot profitably be grown. In the south of Europe, Sicily, Italy, and Spain, two crops of barley are obtained in the twelve months; the one sown in autumn is ready for harvesting in the early spring, and the second is then got speedily into the ground, and comes to the sickle at the ordinary harvest time. This variety of barley was known to the Romans, and is fully described by Pliny. It came to maturity in April.

ROTATION.

The evidence already adduced shows that barley requires a large amount of available food (manurial matter) in the surface soil, and that from its habit of sending out its principal rootlets in a lateral direction through the surface soil in search of food, the soil must be kept in a comparatively loosened state during its period of growth, and be left so after the crop is harvested, and the roots have submitted to the usual process of decay. Hence we may assume that place in the rotation to be the best suited for barley in which the preceding crop has left a large amount of fertilizing matter on, or close to the surface, and in which the crop that follows it may not be prejudiced by the loose and open state of the soil it leaves behind it.

This order of cropping is seen in what is termed the four-course, or Norfolk rotation, which is especially adapted for the lighter descriptions of soils on which the finer qualities of barley are generally grown. Here we have barley grown between turnips and clover—wheat being the fourth crop, and preceding the turnips. The turnips, to which a considerable amount of manure has been given, are fed off on the land; and their manurial produce, frequently enriched by the addition of oil-cake or corn, transformed into the shape of solid and liquid excrements from the sheep, is absorbed and mixed up with the surface soil. On such soils, especially after the deep plouging and extra tillage of the turnip crop, a fine tilth, so necessary for the seed-bed, is readily obtained, and the roots are able to spread themselves quickly through the soil. The clover crop, which follows the barley, has large fleshy roots; these naturally thrive better in a loosened soil than if it were compact and hard, through which roots—those of wheat, for instance—could far more easily penetrate. As the clover roots are developed, the soil gradually becomes firmer and more consolidated; and by the time the crop is finally consumed the pressure on the surface has neutralized the loosening property of the barley, and given the land that compactness which is so desirable for the succeeding crop—wheat. The wheat stubble is ploughed up deep, and left for the weathering influence of the winter months, the manure being either ploughed in with it, or left for the spring ploughing; and the land is then well prepared and in condition for the turnip crop.

If we were to reverse the position of the two grain crops, neither of them would meet with such suitable conditions. The soil would be too loosened by the preceding crops of barley and turnips to suit the requirements of the wheat, while the clover would leave it too firm and compact in texture to be adapted for the growth of barley.

Neither would the chemical conditions of the soil be more suitable than the mechanical. The food would be supplied in the surface soil to the wheat, which has root-power sufficient to seek for it low down in the subsoil; while the barley, whose habit it is to throw out its roots near to the surface, would find the supplies there more scanty than it would like. Thus this place in a rotation is both chemically and mechanically that best adapted to the special habits and requirements of barley.

We see it, however, frequently very differently arranged. The two and the three course systems are only followed on strong clay soils, which in themselves are not suited for barley cultivation. In the five and six course systems. on soils suitable to barley, the same arrangement can be advantageously carried out. Here, however, it is that we meet with variable practices. Sometimes we find it following another grain crop—wheat commonly—where the soil is supposed to be in high condition, and the present rather than the future crops occupy the farmer's attention, the temptation

of putting two consecutive crops in his pocket being too great to be resisted. Under the most favourable circumstances this a very questionable gain, and under ordinary circumstances a very certain loss. Both crops belong to the same order of plants; they require the *same food* from the soil, and in about the *same quantities*, to perfect their growth. The wheat occupies the ground first, and has about nine months to search about and abstract from it all the food it needs. It is then followed by the barley—a plant less vigorous in its growth, which, however, is expected, during the short time it occupies the soil—four to five months—to obtain from it, in its now impoverished state, the same amount of mineral matter which the wheat had double the time to effect in. The consequence is, that the second grain crop is generally a very reduced one. It may look very well while it is growing; but when it comes into the barn, its yield will be found diminished in quantity, while the wheat of the sample shows its deterioration, and lowers its market value. The succession of crops of the same order, too, tells its tale of injuries sustained by the attacks of insects and plant diseases, which, though noticed probably to only a small extent in the first, may, with the powers of increase so remarkable in them, become enormously developed in the second. Where barley follows wheat, the seeds, generally containing grasses—again the same order—invariably suffer; and we all know the value of a good crop of seeds everywhere where mixed husbandry is carried out.

Again, in some rotations, barley is taken after a leguminous seed crop—beans, or peas, or vetches. These, especially the two last, generally leave the land in a very foul and dirty condition—a state very ill suited for barley with which seeds are to be sown down. For these to succeed and give their full return, the land cannot be too scrupulously clean. Besides which, the beans and peas require from the soil the same food as the crop of clover looks for, and are afflicted by the same diseases and injuries which so often diminish our seeds. As a *rule*, we should always bear in mind that *the longer the interval between the same crops, or crops of the same natural order, on the same ground*, the better, and the greater the chance of remunerative cultivation. Experience has long ago pointed this out to the observant farmer, and science has now proved it, by showing him the cause of it.

DAIRY HUSBANDRY.

(*Continued from page* 143.)

Churning.—This is generally done outside the dairy, either, as in summer time, in a paved shed adjoining, or in a back kitchen or washhouse, where the cream may be more easily kept warm during winter. In order to the separation of butter, agitation and mixture of the cream with air are both necessary. The agitation breaks and unites its oily globules, and the absorption of air appears to be a necessary thing in order to their appearance in the form of butter. This is proved both by the fact that milk or cream, however sweet, becomes sour by churning, and that considerable heat is given off, the bulk of the liquid rising in temperature 4 or 5 degrees Fahr. during the process; and both of the facts indicate considerable absorption of oxygen gas.

(1.) In those cases where whole milk is churned for butter, the churn is a fixture. It is an upright, somewhat conical vessel, made so, however, only in order to secure the tightness of its hooping, and it is of various dimensions, from three feet and upwards in height, and from fifteen inches in diameter, and according to the quantity of milk to be treated. This milk is churned when about three days old, varying according to the weather, being first allowed to cool, and then placed in large wooden vats to become sour. The practice is to place it in coolers, as in ordinary dairies, until it has acquired the temperature of the air, thereafter to pour it into large wooden vats capable of holding two meals at a time, where it sours; and if churning is done twice or three times a week, to put into the churn all the milk which has become sour, whether it be sixty, forty-eight, or only twenty-four hours old; never, however, putting sweet milk into the churn along with the sour, as, if milk becomes sour by churning, or otherwise than in the natural way, the buttermilk soon becomes rancid and unsaleable, whereas the buttermilk from milk soured naturally retains an agreeable and saleable quality for a much longer time. The milk in summer is churned at the natural temperature; in winter hot water is poured in with it till it is raised to 65 or 70 degrees. In winter, too, when cows are fed on turnips, the milk is poured at once into the churn, and allowed to sour there; and being hindered as much as possible from cooling, and afterwards heated by the addition of hot water, the butter does not retain any taste of the turnip. The churning commences and is carried on for three hours, a regular stroke of the plunging float-board being an essential part of the process, and a rate of forty to forty-five strokes per minute being maintained. This regularity is attained by

the use of steam or water power, it being in the case of the larger churns too laborious for manual labor. The after-management of the butter, when it has "come," is the same, whatever method of churning is adopted.

(2) When butter is obtained by churning cream, this may be either sweet and fresh, or left to sour. In the former case it becomes sour by churning, and the process is somewhat longer; in the latter the natural sourness facilitates the separation of butter, and provided the natural change produced in the cream by keeping it is confined to mere acidity, the butter is as sweet in the one case as in the other. Whatever churn is adopted, it is washed out first with scalding water, and then with cold water before using it; the cream is then introduced through a coarse canvas cloth, which acts as a sieve, and in winter it is raised to a temperature of 55° to 60° by the addition of hot water; or, as in some churns is possible by standing the whole apparatus in a tub containing water of that temperature. In summer, again, when for the sake of cooling churning should take place early in the morning, Mr. Littledale, of Birkenhead, reports that he has found great advantage from placing in the churn fragments of the clear American ice, by which the temperature is kept down low enough. A common plan is to let cold water stand in the churn for an hour before using it in summer, and to let hot water stand in it for some time in like manner in winter. Another fact affecting all churns alike is, that there is no advantage in too rapid a process of churning. Cream churned from thirty to forty minutes, ought in that time to have yielded its butter; and to this end a regular, not too rapid movement of the agitator should be maintained. In some cases butter will not "come" till after hours of churning, and occasionally patience is exhausted first, and it never comes at all. In this last case a fragment of ice is more likely to be effective than the crooked sixpence, on which the hopes of superstitious dairymaids sometimes depend! A last rule affecting all churns alike is, that churning should cease after the butter has fairly "come" and been collected by the beaters. To prolong it tends to the separation and mixing up with the butter of cheesy particles, which add to the weight of the butter but take from its quality.

(3) Churns of very many kinds are made. The upright churn has been already named. The barrel churn, in which the cream fills one-half or more of a horizontal cask slung in a frame-work, provided with shelves projecting from the inside half-way towards the axis, and the whole turned slowly with the handle, certainly makes more butter than any other in the country. The box churn, in which the vessel holding the cream is stationary, and the churn is agitated by a revolving series of beaters arranged around a horizontal axis, is very common. It has the advantage of requiring less force than when the whole cream and vessel revolves. It has also the advantage of being capable of being placed in a tub of warm water; and in some forms of it, when made of tin or zinc wrapped round two ⊔ shaped end pieces of maple or other white wood, it has the advantage of admitting of a double coat of the kind, the interval between them being filled with water of the temperature desired.* The beaters are generally a mere framework of rods parallel with the axis, and connecting the bars of two cross pieces of wood, through which at either end the axis passes. In the American box churn, however, the beaters are a series of wooden cross arms arranged radially along the whole length of the revolving axis, and hollowed out on the front side, so that, the cream filling the box but little above the axis, each arm carries down within it its arm full of air, which thus becomes thoroughly intermingled with the cream, so that both purposes of churning are effectively accomplished. In Rowan's churn, an oval tub open at the top is divided by a longitudinal upright division, open, however, at either end, on one side of which the beaters revolve, while in the other is placed a transverse wirework screen acting as a sieve. The milk is thus beaten up in the manner of the pulp in a paper-mill, and passes forward round and round this longitudinally partial division, and the butter as it "comes" is caught by the screen; while vessels of hot water, if necessary, may stand in the unoccupied side, and so keep the milk, as it passes them, of the requisite temperature. The common Sussex churn is a fixed horizontal cylinder of tin, with horizontal axes and beaters of flattened tin tubes, and the whole may be placed in a tin of warm water to be kept of the right heat. There are also many upright churns, within which beaters revolve round one or more vertical axes. Thus, in Mr. Clyburn's churn, employed by Mr. Littledale, of Birkenhead, a vertical cylinder holding eighty gallons is provided with fixed arms projecting inwards from its surface nearly to the central axis, and between them other

* This form is manufactured by Robinson, of Lisburn, County Armagh.

arms on this axis revolve at the rate of 100 revolutions per minute, and butter "comes" generally within half an hour. How very rapidly the process may be carried out is apparent from the following remarkable statement by Mr. Littledale:—"We churn by steam, and last summer we tried the shortest possible time we could do it in; it was a hot day, and we accomplished it in five minutes and a half; the engine making 300 revolutions per minute, and the quantity eighty gallons of milk. We have also found out in this very hot weather that it pays us well to put American ice into the milk before churning, to reduce the temperature to get out more butter."

Let it be noted here, that however possible and even desirable, when an immediate sale is obtained for the produce, such rapid churning as this may be, it tends more to the permanent value of the produce when butter is obtained more slowly, as, for instance, in forty minutes, or within the hour.

Among other vertical churns, we may refer to Standing's (Preston, Lancashire,) patent "sun and planet" churns, in which two vertical axes are made, by a very simple arrangement of bevilled wheels above, to revolve each on its own axis, and each around the other, so that the whole mass of milk within the cylinder is made to undergo a beating, without generating any revolving motion of the milk itself within the vessel, which would, of course, so far enable it to escape the action of the beaters. A common vertical churn consists of a simple cylindrical vessel, with an upright axis, carrying three pierced flanges, extending from the axis to nearly the surface of the vesssel, and worked by a handle and bevilled wheels above. In this case, it is well, with every two or three turns of the handle, to reverse the movement, because of the tendency of the motion one way to carry the milk or cream with it. Lastly, we may name Drummond's (Stirling) plunge churn, in which two plungers work alternately up and down alongside each other, and thereby produce sufficient agitation in the cream; the tub being separated into two chambers, one for each plunger, by a vertical perforated divider.

The following are the prices of the common forms of churn:—Barrel churn costs from £2 upwards, the smallest size being eighteen inches long, and as much in diameter at the widest part.

Rowan's churn varies from 50s. to £4, according to size. The Sussex churn costs from 30s. to two guineas. American box churns vary from £2 to £5 or £6, according to size. Standing's "sun and planet" churns are advertised at from 33s. to 118s. *i. e.*, as capable of churning two gallons to thirty gallons of cream.

In every case after churning and the removal of the butter and buttermilk, the churn is to be well scrubbed and cleaned with cold water; and then, being washed out, scalded with hot water, which should stand in it for an hour, and the churn may then be left open to the air to drain and dry.

Correspondence.

GOOD COWS, WALKING HORSES, &c.

Mr. Editor—What is the principle by which Judges award prizes to the best cows for milk? Is it by their appearance only, if so, this, I apprehend is not always a sure sign. Should not some facts be produced proving what the cow has yielded as evidence of her goodness?

What are the best marks or signs of a good cow?

In raising calves are there any marks by which we may know that the one will be a good milker, and that the other will not be as good? Can any one give us any information on this subject?

In the *Genesee Farmer* for the present month, I find an article on walking horses, and the writer suggests the offering of premiums at our Agricultural Shows for fast walking, as well as for fast trotting horses. I am quite of this opinion, as fast walkers are of more importance to the farmer than fast trotters; this quality is much needed at the plough, the harrow, and when taking off loads. And should there not be a prize for the oldest team in good working order?

This may lead to the choice of the best stock of horses, and the kind of treatment they have received.

I often see a fine animal passing my place before a load of wood, and the owner informed me that she was twenty-four years old.

I hope this will draw out others on these subjects.

S. King.

Ryckman's Corners.

HUNGARIAN GRASS.

To the Editor of the Agriculturist.

Pine River, March 13, 1860.

In an early number, will you oblige a *new* subscriber with instructions as to the

proper time for sowing the Hungarian Grass Seed; I am told it may be sown in *May* for a crop in July, or in July for a crop at the end of August—and that two crops may be got from the same piece of ground, in the above respective months. The land in which I propose to try the experiment, was last year cropped for the *first* time, and with potatoes and turnips. How many pounds per acre of seed ought to be sown on this new and stumpy, though in other respects tolerably clean land, which, in composition, consists of the natural *top soil* of decayed vegetable matter, loam and clay.

I learn that the Hungarian Grass is not suitable as constant food in winter for horses—is this a fact?

R. Greenham.

Remarks.—Hungarian grass seed may be sowed any time during the months of May and June, at the rate of 16lbs to the acre, and will come to maturity on a good, suitable soil in about three months. We think that two crops could not be profitably got in one year in this climate. If sown early it might be ready for making into hay about the end of July, and a crop for forage in a green state may perhaps be got afterwards; but we should very much doubt the expediency of the proceeding; at least as a general rule. The Hungarian grass, (which is a species of millet,) has not been as yet much tried in Canada, but in some parts of the United States it has been experimented on rather extensively, and in the majority of cases with satisfaction in the result. All animals are fond of it in a green state, and when fully grown it may be made into hay—yielding, according to several statements which we have seen, from 2 to 3 tons and upwards per acre. Our correspondent's soil, we should think, is well adapted to this crop, which can no doubt be cultivated with advantage where clover and timothy have failed; or as summer provender on farms partially cleared, when it might be sometimes advantageous to make it into hay. We have heard that horses having eaten largely of the hay in winter, have sometimes done badly, being afflicted with stiffness in the joints; but we have not been able to trace such reports to any very authentic source. Probably if it is allowed to ripen its seed before mown, the large quantity of seed which it usually yields, may not, when taken in great quantities, agree with horses or cattle generally. Upon these and other points, however, we need information from well directed experiments. We have no hope, however, of ever seeing the Hungarian grass supersede, in any degree, our ordinary timothy and clover.—Eds.

PREPARED CATTLE FOODS.

Editors of the Agriculturist.

Cobourg, April 2, 1860.

Instead of drawing on my *own* resources for something hardly worth printing in your very excellent paper, I prefer using the Editor's friend, *Mr. Scissors*, and clip an article from the "Field," which will well repay a pointed study from every feeder of a *horse, cow, sheep,* or *pig*.

Farmers are shaved in many ways besides on pro. notes, and the following extract will show very clearly whether *Chemistry* is entitled to become part of a farmer's education, or be scouted, as fit only for those who can't hold the plough.

Yours truly,

P. R. Wright.

Horse and Cattle Foods.—Those who have watched the progress of agriculture in these days, have no doubt observed that it is not in one branch alone, but that agriculture as a whole has made rapid and important strides. While the mechanical department has received full attention with marked improvement, the growing of seed has become a matter of varied research and experiment. While greater care has been taken of the different breeds of animals, the progress has undergone alterations and received additions; hence many new kinds of food have been introduced, resulting in a quicker and greater develop-

ment of saleable carcass. When chemical analysis had once shown how food should be applied so as to produce the greatest amount of flesh, the point for consideration was the limit of price of these flesh-producing substances, so as to bring feeding within the bounds of a profitable operation, for there is necessarily a pecuniary limit beyond which the cost of food would be more than the product of feeding. We may assume that this has now been ascertained by direct experiment, and that the different kinds of cake which now form the basis of feeding are within the range of a reasonable return.

It is not surprising, when artificial foods should thus come to be adopted as so much fattening power, that various mixtures should be employed largely impregnated with stimulating substances. They are thus made extremely palatable to the animal, who naturally enough thrives upon the good things provided for him. We will not now stop to inquire how far this stimulus may be permanently beneficial, even admitting the temporary advantage; our object is simply a cash account. If the price of cake, ranging at about £10 a ton, forms the limit from which any ordinary return can be expected, how can an article, sold at a price realizing from 300 to 400 per cent. on the cost price of the materials of which it is composed, ever bring any return at all? Such savoury condiments, dished up at from £40 to £50 a ton, have no more fattening powers than the ordinary cakes and meal, of which, indeed, their bulk is principally composed. Locust beans, the different oilcakes, and Indian corn form the basis of these cattle foods so often paraded before the public, with which sundry stimulants, making a kind of curry-powder concoction, are mixed up. This, though it may be highly agreeable, yet at the price above stated forms a most costly addition to the ordinary feeding cost, and an animal once pampered on such material can hardly fall back on ordinary food; hence the price of fattening is greatly enhanced, but without any increase of the saleable carcass, for there is a natural limit in this direction. A compound at £40 a ton will make no more flesh than oilcake at £10; but if the farmer approves of and will have the compound, let him simply mix the materials himself. There is no secret in the composition, for the test is at hand in a simple analysis. The following is an ordinary formula:—

TO MAKE ONE TON OF MEAL.

	Cwt.	qrs.	lb.	Price.		
Locust Bean, finely ground, at £6 a ton	6	0	0	£1	16	0
Indian Corn, at £7 a ton	9	0	0	3	3	0
Best Linseed Cake, at £10 a ton	3	0	0	1	19	0
Powdered tumeric, at 8d, a lb	0	0	40	1	6	8
Sulphur, at 2d. a lb	0	0	40	0	6	8
Saltpetre, at 5d. a lb	0	0	20	0	8	4
Liquorice, at 1s. a lb	0	0	27	1	7	0
Ginger, at 6d. a lb	0	0	3	0	1	6
Aniseed, at 9d. a lb	0	0	4	0	3	0
Coriander, at 6d. a lb	0	0	10	0	7	6
Gentian, at 8d. a lb	0	0	10	0	6	8
Cream of Tartar, at 1s. 8d. a lb	0	0	2	0	3	4
Carbonate of Soda, at 4d. a lb	0	0	6	0	2	0
Levigated Antimony, at 6d. a lb	0	0	6	0	3	0
Common Salt, ½ a lb	0	0	30	0	1	3
Peruvian Bark, at 4s a lb	0	0	4	0	16	0
Fenugreek, at 9d. a lb	0	0	22	0	16	6
Total	20	0	0	£12	18	5

Looking at this composition, it will be evident at a glance that the chief ingredients, are the ordinary commercial locust bean, Indian corn, and oilcakes. These form its bulk, and constitute nine-tenths of the whole; the remainder being made up of condiments and stimulants, the sulphur and antimony being intended to act upon the skin in the production of a fine coat, and the fenugreek forming a kind of mucilage to prevent any ill effects that might arise from the stimulating character of the food. These ingredients have, no doubt, been selected with skill, and an animal may be expected, and not unreasonably, to thrive upon such savory substances. For this precious article (which it unquestionably is) the modest sum of about 42s. a cwt. is demanded, or at the rate of £42 a ton, or upwards of 200 per cent. on the cost prices, even taken at the valuation given above, which, for the one-tenth or stimulating portion, might be considerably reduced if the several materials were bought at wholesale prices. We prefer, however, to take the ordinary trade valuation, in order to give the widest margin possible for the cost—this, after all, being the simple point at issue. If a farmer wishes for the article, the use of which, containing as it does so much stimulating matter, is very questionable, and chooses to pay from three to four times the intrinsic value, it is, of course, at his option to do so; but as the whole question of farming is one of paying, we will put it plainly—Can it pay to feed animals on substances costing from £40 to £50 a ton? A knowledge of the constituent elements of these foods may induce a pause before the outlay is made. Some supposed great secret has, no doubt, with a few, acted as a charm, on the

principle of *omne ignotum pro magnifico;* but the analysis at once dispels this allusion, and nothing remains but the cost and its result, mere matters of ordinary calculation,

Which each man will do well to try
Ere he commits himself to buy.

—*The Field.*

Agricultural Intelligence.

Dogs and Sheep.—We regret to notice in the local papers that many valuable sheep have lately been destroyed in the neighborhood of Guelph, by dogs. Messrs. McCrea, Pipe, Chipcase, and Edward Brown have been among the sufferers. Mr. McCrea had about 20 valuable sheep killed. Mr. Pipe lost 6 pure bred Leicester ewes in lamb, which he had lately imported at great expense. Such losses from such a cause are lamentable, and show the necessity of some stringent regulation in regard to such dangerous animals. The dogs which effected the damage in this case, broke into the pens in which the sheep were confined at night.

Flax.—The cultivation of flax is now attracting a large amount of attention in various parts of the Province, and it would seem that this question, so long discussed, is at last to be seriously taken up. The great difficulty heretofore has been the want of a local market, and of mills to prepare the fibre for market. We now hear of several projects of erecting mills. One is proposed to be erected at Georgetown, on the Grand Trunk Road. Mr. James Young proposes to furnish seed to 100 farmers, on condition that they sow five acres each, and bring the flax to the mill. Payment for the seed will not be exacted until the crop is harvested. The Ayr *Observer* says that upwards of seventy farmers in that neighborhood have engaged to sow a greater or less quantity of land the ensuing spring.

The Crops.—We hear rather conflicting statements of the condition of the winter wheat in this Province. Some accounts state it to be much heaved out of the ground, while others represent it as very promising. Of course a good deal depends upon situation, and the quality of the land, the precautions taken to secure drainage, &c. On the whole we are disposed to think that the prospects of the crop are favorable. We have had, so far, rather early spring weather, but the frosts at night have been injurious. A few genial growing days would soon place the crop out of danger.

Illinois.—The early sown fields are generally looking well. There are fears that the late sown wheat is entirely killed out; that put in with a drill or plough is looking well.

Indiana.—The winter has been unusually favorable, and the wheat in the central part of the State looks well. Unless a great deal of thawing or freezing takes place without snow before the middle of April, it will have every chance of a fine start. In other outlying districts it is considerably injured.

New York.—The Buffalo *Express* reports from travellers that the growing wheat looks promising and apparently safely through the winter.

Kentucky.—The late sown wheat in this State, it is feared, will be of little use, but the earlier sown is safe. From other western States, the information, as far as it goes, is also favorable, and on the whole the prospects for the harvest of 1860 are equal to any of former years.

Canadian Oats in Scotland.—In Oats of any other variety, there were some very remarkable specimens of Canadian oats. Mr. Hutcheson's third prize sample was of that species of grain, but did not by any means show its qualities so strikingly as a sample of Mr. Souter's, of Strocheries, which was excluded from a prize by its having been partially "*sheeled*," in the process of being threshed. The grain was so very large and well matured that the "*sid*" by which it was covered, on being struck in threshing, had in some cases flown off, and gone with the chaff in dressing. This sample was said to be of the extraordinary weight of 50 lbs. per bushel.—*Banffshire Journal.*

[These Canadian oats were shown at the Banffshire District Agricultural Exhibition, held on the 7th of February last. It is not stated from what part of this Province the seed was obtained, nor the name of the variety. The climate of the Lower Province is more favorable to the oat, than that of the western section, but the contrary is the case with regard to wheat. Scotland is peculiarly adapted to the growth of the oat; and from the above facts, it would appear, that Canadian varieties when introduced improve both in weight and quality.—Eds.]

Horticultural.

HORTICULTURAL SOCIETIES.

ANNUAL REPORT OF THE TORONTO HORTICULTURAL SOCIETY.

We are glad to see that this important and long established society continues to

flourish. The spring and summer exhibitions were as successful as could be expected under the circumstances; the unusually severe frosts that occurred in June, and the general failure in fruit of most kinds, operated most injuriously on Horticultural Exhibitions throughout the Province. The Fall Exhibition was held in the Crystal Palace, in connection with the "Electoral Division Society," and formed one of the principal attractions of that show. The vegetable department was excellent.

We learn from the Report that the ground given by the President of the Society, Hon. G. W. Allan, for the purposes of a Botanical Garden, has been put under a course of improvement and preparation. Nearly £400 having been expended in draining, levelling, mounds, roads, &c., under the superintendance of Mr. Edwin Taylor, Landscape Gardener, of this city, who furnished the plan which is so generally admired. It is expected that the garden will be sufficiently finished this year for occupation by the society in the fall. These grounds, when completed, will reflect great credit on the Society, will be a lasting monument of its President's enlightened generosity, and will afford delightful walks to the members and citizens generally, amidst the most attractive and delightful objects of nature.

We are glad to find from the prize list of the present year that the President again offers three silver medals:

For the best collection of Roses (all kinds).
For the best collection of Grapes and other Fruits (grown under glass).
For the greatest number of first Prizes in Vegetables and smaller Fruits.

SPECIAL PRIZE OF $5,

For the greatest number of new or rare Plants and Flowers shown during the season, and not previously exhibited.

The Report concludes with the following just tribute to the character and services of an old and tried friend of Canadian Horticulture, who has lately been removed from among us by the destroying hand of death.

Your Committee, before concluding this very imperfect report, feel it to be their melancholy duty to make a brief allusion to the loss the Horticultural community has sustained in the lamented decease of Judge Campbell, of Niagara. By the members of this Society, to most of whom he was personally known, his general kindliness of disposition, and readiness to enter into any scheme for the furtherance of our common object, will—while we cannot but express deep regret for his sudden and unlooked for departure from amongst us—be ever pleasingly remembered; in fact his indefatigable exertions and enthusiasm in every thing pertaining to Horticultural matters, will form a subject of conversation for years to come, more particularly during the holding of the "Annual Exhibition of the Provincial Agricultural Association," at which he was on every occasion, we can safely affirm, the largest, most valuable, and successful contributor in his department, and it will be long ere his place can be supplied.

TENTH ANNUAL REPORT OF THE HAMILTON HORTICULTURAL SOCIETY.

This valuable society continues to pursue the even tenor of its way, making a gradual and consequently a healthy progress. It embraces many able cultivators of the Horticultural art, both professional and amateur, and Hamilton possesses within itself all the elements of a good permanent society, and the means of getting up first rate exhibitions, some of which we have attended with great pleasure and profit. We subjoin a few extracts from the Report that will generally interest our readers:

EXHIBITIONS.

The Exhibitions of the Society have been unusually successful, and the quality of all articles exhibited, especially Flowers and Vegetables, has been superior. Stone fruit, having entirely failed in this district, (owing probably to the severe frost of the winter of 1858–9, when the thermometer sank to more than 30° below zero, and also to the late frost on the 12th of June, which was very severe) there was a falling off in this department. It was, however, more than made up for by the great excellence of the others.

The following table shewing the progress of the Society is deemed worthy of preservation:

PROGRESS OF THE HAMILTON HORTICULTURAL SOCIETY.

Years.	June Show		July Show		Sept. Show		Total prizes offered.	Total prizes taken.	Total entries made.
	Entries Made.	Prizes offered.	Entries Made.	Prizes offered.	Entries Made.	Prizes offered.			
		$		$		$	$	$	
1851	174	82¾	—	—	219	140	223	196	393
1852	115	83	—	—	270	138½	221½	162	385
1853	150	77	118	59	294	101½	237½	197	562
1854	193	97½	143	64½	361	135½	297½	268	697
1855	185	103½	—	—	343	177½	281	260	528
1856	225	107½	179	77	374	202	386½	320	778
1857	217	117	240	96	445	224½	437½	339	902
1858	207	131½	229	118	392	240	489½	345	828
1859	318	125½	388	120¾	712	252	498	387	1418
Totals.....							3072	2608	

DECEASE OF JUDGE CAMPBELL.

The Board cannot leave this subject without paying a tribute to the memory of the late Judge T. C. Campbell, of Niagara, who so often officiated as a Judge at their Exhibitions. As a Horticulturist, as well as in other walks of life, he was eminent, and his death must be a serious blow to the progress of the Gardeners' art. Men, like flowers, must die, yet Judge Campbell seemed likely to live usefully so much longer that we grieve over him the more; just as the last of a plant which an untimely frost destroys is more severely felt than if it had lived until its usual time to droop. We may perhaps find other men, like the deceased judge, not sparing time or money or effort, in urging on the cultivators of the soil to greater achievements, but we fear his loss will not be soon replaced.

SCIENCE AS WELL AS ART TO BE CULTIVATED.

The Board would urge upon the working members of the Society that their labors would be more beneficial to themselves and the community if they would study the science as well as the art which they have daily opportunities of cultivating. Botany presents a wide field, and Canadian Botany especially, is a rich and almost untouched mine. It is to be hoped that the visit of Sir William Hooker, which is to be expected, will give an impetus to its study, which will not die away when he leaves our shores.

FIRST REPORT OF THE COBOURG HORTICULTURAL SOCIETY, 1859.

We are glad to find that a Horticultural Society has been established in this town. If horticulture be at all supported in the same enlightened and enterprising spirit as agriculture has been for many years in this well cultivated and improving district, we shall confidently anticipate for Cobourg a first rate society in a few years.

"At this the first Annual Meeting of your Society, your Directors cannot help congratulating you on the complete success which has attended your first efforts in establishing an Horticultural Society. The prompt and energetic manner in which all classes joined in their endeavors to aid, both with the products of their gardens and their greenhouses, in making our first Exhibition succeed, fully convinced its originators and promoters, that it only required to be brought before them (the public) to be at once appreciated and supported.

At our first Exhibition, although we had to contend against a very late frost in June, which destroyed nearly all our spring flowers and seriously injured the early vegetables, still the Exhibition then made was creditable in the highest degree; in fact, in some varieties of flowers (Geraniums and Pansies,) we could well compare with Societies of many years' standing."

The following suggestions we recommend for general consideration:

"Your Directors would beg to draw the attention of yourselves and the public generally to the value of Horticultural Societies, inducing, as they do, persons to study the *science* of Horticulture, which, when fully understood and employed, will enable them to enjoy the profits and pleasures of their gardens without incurring any more expense than is now had by many without having the satisfaction which would then accrue; and in reference to this matter we would suggest that some steps should be taken either during the ensuing summer or in the course of the following winter to have a course of lectures delivered by competent persons, giving us useful, practical and scientific information on the culture of the different products of the garden, and which may easily be done if the energy exhibited this last year be again brought into action."

As we have resolved to assign a department to Horticulture in each number of this Journal, we earnestly request nurserymen, gardeners, both professional and amateur, and others interested in this refining and useful pursuit, to aid us by forwarding information and the results of their own experience. Articles however short will always be acceptable.

TROUBLES IN THE FRUIT GARDEN.

"EXPENSIVE NOTIONS."

No. II.

Some men having fallen into a beaten path of thought or labor, appear to be unable to leave it, or to think that other paths and other modes may be as desirable. In gardening, this obstinate attachment to old plans and methods has been as detrimental to its advancement as it has in other pursuits. Many a man, and for that matter also woman, in possession of a garden spot, would delight in making it produce the choicer as well as the commoner sorts of fruits, but they are deterred by the expense. If one should take up a book upon the subject, say the culture of the luscious foreign grape, he is at once appalled by the endless preparations required, even when the writer professes to give directions for its culture in the most inexpensive way. The authors of these books assume that this grape can be cultivated only in one way, and that so costly as to put it out of the power of those who are afflicted with that universally lamented but very general malady the "Augusta res domi." But I feel confident that the powers of the grape—its power of adaptation to an endless variety of circumstances—its power of drawing nutriment from apparently exhausted sources, and its power of maturing fruit under apparently adverse conditions, are exceedingly underrated. Indeed people in general, and horticulturists, seemed leagued to prevent the vine doing its best, and proving itself to be the most vigorous and productive of all plants, ever ready to yield its beautiful fruit and grateful juice under the most ordinary treatment and in the most inexpensive way. We purpose now to answer the question. "Can the foreign grape be raised cheaply?" We answer yes, and very cheaply, as will be seen from the succeeding observations:

1. And first for the size of the border, or ground to plant the vine in. Read almost any Grape Grower's Guide, and how appalling the preparations detailed as requisite. Allen's "Culture of the Grape," a very good work for those who have plenty of spare cash, on this point has the following:—"The border should be twenty feet wide for each set of vines—if thirty the better—and 2½ or 3 feet deep. If you have but little room, you can manage to grow very fair grapes with 12 feet border." Now this involves great labor and expense, and it is not at all necessary. A border four feet wide is abundant for at least the first few years. It is very certain that the first prize given by the Royal Horticultural Society of England for grapes, was taken by those which were grown in a border not more than *two feet* wide. (See *Horticulturist* for October 1856.) The *London Gardener's Chronicle* says on this instance:—"Wonders will never cease. All the grape growers were beaten the other day by an interloper. Seldom have practical men received a more heavy fall. Great rules were violated. The wisdom of our forefathers was thrust aside like a piece of useless lumber. It is incredible though true. The large silver gilt medal, the highest offered for grapes, was awarded to Mr. Glendinning, of the Chiswick Nursery, for three dishes of grapes. The fortunate winner in the instance before us, built a glass shed or lean-to with a border and walk at the back. This back border is *two feet* wide, and in this the vines were planted. Again, fine grapes are borne by vines produced in pots. Buist says, that he has seen a vine in a pot of the Chasselas kind, with 29 bunches of fruit on it. Allen himself says, that "grapes in pots may be grown successfully, proper attention being paid to watering them. A vine in a 12 inch pot may mature from 5 to 10 bunches. A wooden box, or the half of a large keg is preferable, as the soil is less liable to dry and form into a lump; when this is the case, the water is very apt to run away by the sides of the pot, leaving the middle of the soil perfectly dry." And Judge Harrison of Toronto has, we are informed, practised, and prefers pot culture of the vine, with great satisfaction and good results. Hence, a narrow border will, at least for a time, answer every purpose. The labor and expense of preparation of it will be small, and you have this decided advantage that you can, if you choose, add to it when convenient. But now—

2. As to the formation of this border. Hear Allen again—"If the soil is a good loam, begin at one end and trench it; mark off ten feet the entire width, throw out the soil two feet." Harken to Charlton, Cold Grapery, p. 32—"Take out to the depth of *two* feet the whole of the upper surface, then dig a trench two feet wide and one foot deep, with one or more outlets for the water to escape all around the margin of the excavated space." Now why all this excavation? Is the sky so low where these

writers dwell that they must bury thus deep? Is there no deep, blue vault of heaven above them? Far easier to make the border on the surface—since the vine must have dry and firm footing. Chorlton says, "The grape vine is not so capricious in its food as is generally supposed, but a *dry bottom it must and will have.*" In this opinion every other writer on the grape coincides. What easier mode then to secure this drainage than by making the border on the level ground. Of course you must be guided by the position of your garden. It may have a slope, or it may be a level, but in any case, by the formation of the border on its surface you can secure, without fail, adequate drainage.

The materials of this border need by no means be as far fetched and as costly as is in general recommended. Suppose you build a grapery of the following dimensions —(a small one indeed, but quite large enough to afford you ample and delightful occupation, and fruit in abundance for a family)—in middle 8 feet, in length 15 feet —for this the border required will be 15 x 16—cover this space with bones, old shoes, or old plaster, two or three inches, then a foot of the very coarsest manure you can get—cow and sheep droppings are excellent if mixed with it—and then a foot of sod from the roadside, or an old pasture, or if these be wanting, use your own soil. In this, after it has well settled, your grapes will grow finely, and if they should, as they most certainly will, find their way into the soil below, and into the subsoil below that again, unless you take measures to keep them to the surface, that is their business. Nor are they likely to suffer, for grape growers are just beginning to discover that the subsoil, even though a clayey one, is not one from which the roots shrink, or are likely to be injured by its damp. When we recollect that these roots are in rocky formations sent many feet down into the crevices, and there, amidst cold and moisture, remain without detriment to the vine, as is proven by the annual abundant yield, we need not be so apprehensive as many appear to be, of their descending into the common and not inimical soil in the garden. But then—

3. As to the structure. We have above stated the dimensions, 8 x 15, span roofed. The sill 6 x 6; studs 4½ feet; plate 3 x 4; rafters 6 feet, 1½ x 8. On the upright sides there will be at the bottom a foot board, leaving 3½ feet for glass. On the roof the sash bars will be a fixture, 4 ft. long, leaving 2 feet nearly, for a board, to be hung on hinges, and which may hereafter be replaced by long sashes. Small as this house is, it will contain 12 vines, and will the second season almost certainly produce 50 lbs. weight; the third 100; the fourth 150; and so on until it yields 300 lbs. weight; as much as it ought ever to be allowed to give. Glimpses of the truth with regard to the vine appear to have been enjoyed by the writers above named, for Allen says:—"Experience convinces me that fine grapes may be grown in a house of quite small dimensions."—Most certainly they may, since in England they have often been grown in structures not much, if any, superior to good hot beds.

The last particular on which we shall have to remark, and a most important one is, the

4. Choice of varieties—and here there can be no hesitation, for the Black Hamburgh and the white Chasselas take the lead, and are far before others the ones with which a beginner should have to deal. I have obtained fine plants of these varieties from the excellent nursery of Mr. Leslie, and doubtless they can be obtained there still.

This vinery, built in a neat but plain and substantial style, would be far more satisfactory and scarcely more costly than what is called the Curate's vinery. This is simply a ditch covered with glass. But it would take five or six times as much glass to cover the number of vines as in the above, and would be much more inconveniently attended to. Mr. Roberts covered some old sand pits with old sashes, planted grapes on the edge of the pits, trained them under the glass, and without further trouble obtained good crops of fruit. If any thing more were needed to prove the inherent vigor, ease of adaptation to varying circumstances, readiness to repay even ordinary attention and culture of the noble vine, this may do it. There is indeed no reason why superior varieties should not be produced in every yard or garden in our large cities and towns. Planted there, they might be trained to advantage on the extensive spaces of blank brick wall, which are now an eye sore, at once ornamenting them by their beautiful foliage, and saving the foreigner the expense and bother of bringing to us what we might and should produce abundantly ourselves. CLERICUS.

HINTS ON THE FLOWER GARDEN.

"How exquisitely sweet
This rich display of flowers,—
This airy wild of fragrance,
So lovely to the eye,
And to the sense so sweet!"

Any one having but a few square yards

only of spare ground, may find that sufficient to call forth his taste and ingenuity in laying it out to the best advantage. Every dead wall or unsightly object should be covered with monthly or other suitable roses, and various kinds of creepers, which through a large portion of the year impart an air of comfort and beauty to one's dwelling, and keep out of sight objects that would otherwise be disagreeable. Larger flowers, such as hollyhocks, sunflowers, &c., should be planted as in a back ground in gardens of any considerable space, either in clumps or singly. Flowers next in size should succeed, and followed in the foreground by the innumerable varieties of the smaller beauties, such as pansies, auriculas, polyanthuses, &c. By this mode of planting each flower is distinctly seen; there should be no crowding, even in the smallest gardens, and care and taste are necessary to prevent the arrangements from being too stiff and formal. That system of laying out which most pleases the eye, and permits air and sunlight to act freely on the plants, should be adopted; and although general rules have been discovered and recognised by cultivators of taste; yet each individual should so modify them in their practical application, as best to meet the wants and peculiarities of his own case.

Not a moment should now be lost in completing all the arrangements of the flower garden, and the carrying out the various details. As annuals, which bloom and die in the same year, form a numerous and beautiful group, and give a distinctive character to the flower-garden, we will first direct our attention to them. On page 129 of the present volume, may be found a list of choice flowering annuals adapted for sowing in a hot-bed. These are delicate, and require considerable care in transplanting. China-Asters, Chrysanthemums, Marigolds, Persicarias, &c., will generally do well when sown in a warm, dry and suitably prepared border, as soon as the earth gets sufficiently warm and dry. But these and similar flowers, will blooom earlier if assisted in the first instance by glass. The ground should be well pulverized and raked fine for annuals, which will flourish in a light and friable soil. The seed should not be sown too thickly, and covered about half an inch with fine earth. The larger kinds, such as sweet-peas, lupins, &c., should be sown deeper, say an inch. In order to get well developed specimens, the plants should be carefully thinned, so as to allow light and air freely to exercise their indispensible influence. Hardy annuals do not well bear transplanting, and should be allowed to remain where they are sown, taking care to have but a few of the larger kinds in one group. In dry weather, the plants must be watered moderately, carefully avoiding cold spring water. Rain water is the best, but water from a well should never be used without its having been exposed to the air and sun for a day or two. Sweet peas should be sown as early as the state of the ground and weather will admit. Make a circle round a strong stick, and plant the peas an inch deep; adding subsequently outer circles, to keep up a perpetual bloom. Ten-weeks' stock, Mignionette, Venus's Looking-glass, &c., are well adapted to ordinary gardens, and impart either scent or beauty.

The following are hardy annuals, requiring no assistance of artificial heat, and should be allowed to stand where they are sown:

Adonis Flower—Red and yellow.
Candytuft—Large, purple and white.
Larkspur — Double rose, white, double branched and blue.
Lupins—Yellow, white. scarlet, marbled, rose, large and small, blue.
Sunflower—Tall, double, and dwarf.
Poppy—Double striped, dwarf striped, double corn. and horned.
Convolvulus—Major, minor, striped, white, scarlet.
Hawkweed—Yellow, purple, red.
Starry Scabius.
Saffron Flower.
Nasturtium—Large and small.
Tangier Pea.
Sweet Pea—Purple, white, scarlet.
Winged and Crowned Pea.
Nigella—Blue, white, oriental, and curled.
Lobel's Catchfly—White and red.
Pimpernel, Venus's Navel-wort.
Virginia Stock, Strawberry, Spinach.
Marigold—Double orange, lemon-coloured, annual large.
Mignionette.
Ten-weeks' Stock Gilliflower—In varieties.
Hearts' Ease, Snap-Dragon.
Persicaric, Clarksias.
Globe Thistle.
Amethystia.
Antirrhinums.

The number of plants for bedding out, or to be grown in masses has greatly increased of late years. This mode of arranging flowers in the garden, by observing either regular or irregular figures, has when tastefully managed, a very pleasing effect.—

We can only glance at a few plants suitable for this purpose, and adapted to the climate of Canada.

Among the most showy of bedding-out plants are the Antirrhinums, or Snap-Dragons, the varieties of which are numerous, and the colors of the flowers often extremely brilliant. If sown early, they will blossom the same year. They thrive best in a rich sandy loam.

Fuchsias are in great variety, and are great ornaments either of the greenhouse or open garden. "They can be readily propagated by cuttings, in sand, with a mixture of peat; to grow the plants for a bloom all summer, they should be started in February, in the green-house, first in *small* pots, and shifted, when the roots completely fill it, into a mixture of fresh loam, peat-leaf mould from the woods, well rotted manure, and a little sand; mix thoroughly and break finely (*not sifted,*) with the spade or trowel. Give the roots good drainage, place them in the warmest part of the greenhouse, and water them frequently; as the warmth of summer approaches, and the greenhouse becomes empty of plants, place your Fuchsias in the most favored position, shading them with mat or cotton awning from the sun, after ten o'clock in the morning, which remove at four P. M., unless the sun is off sooner." With a gentle syringing every day, they will produce blossoms through the summer and autumn. In October, the watering must be gradually lessened, and by November only sufficient moisture is required to preserve vitality. They can then be readily stowed away, on a dry shelf, in an obscure part of the greenhouse.

Gaillardia Picta is a very ornamental bedding plant; it is perennial, but not hardy enough to stand our winter. It is propagated by cuttings. Its blossoms are very fine, continuing all the season; crimson edged with yellow. The old plants must be taken up in autumn.

Geraniums form a numerous and beautiful class of plants, whether in beds or in pots, and enliven the garden or balcony all summer. They are easily raised from cuttings, and if started tn February, in the green-house, they will be fit for summer planting. The "*Flower of the day,*" a variety of scarlet Geraniums with silver-edged leaves, is a magnificent but scarce bedding plant. There are other varieties of great beauty and luxuriant foliage. The *Geranium Lucia Rosea,* blooms abundantly in the open ground, and is altogether a distinct color among geraniums. "It is a gem in the flower garden, being not only distinct, but superlatively beautiful, and the cultivation the same as in other varieties."

Lantuna—"One of the ancient names of the *Laburnam,* which this resembles a little in foliage. This species are all greenhouse plants, but flower finely in the garden." They form small bushes, with pink, yellow, orange or changable heads of flowers; and are readily increased by cuttings.

Petunias are distinguished for a brilliant succession of flowers from early summer to the frosts of November. They are raised from seed sown in a hot-bed in March; afterwards pricked out into small pots, and when sufficiently strong, may be turned into the open ground by the end of May. The finer varieties are increased from cuttings, at the end of summer. They form a brilliant group for any garden.

Our space will only admit of bare reference to the *Pyrethrum,* or Double Fever fen, whose white daisy-like flowers make it a favorite for ornamenting the garden.

The *Verbena,* flowering from June to November, is a great ornament, and admits of a great variety of shades. They are readily propagated by cuttings, and may be planted out in the open air the beginning of June. The *Portulacca, Escholtoria, Drummond Phlox, Rocket Larkspur, Ten-week Stocks, Candy-Tufts,* and a great many others are hardy flowers, very various in color, and suitable for ornamental gardening. "The ladies will find it a very interesting study to learn the art of arranging the flowers of the garden; and such as have a correct taste for dress, will, probably, be the most expert scholars in this school."—(*Breck.*)

J. F.

Veterinary.

Spaying Milch Cows.—This somewhat novel practice, will not of course be adopted in country dairies, since in such the rearing of calves is a matter of importance, yet it remains to be seen how much good the practice will effect in large towns, in which cows are kept exclusively for the milk they yield. Levrat, a veterinarian of Lausanne, performed the operation on five cows in 1838, and he reports that "the removal of the ovaries causes a continuation of the secretion of the milk for several years, just as it was at the time of the operation. The quantity may even augment by one-third, and the quality is better."

Mr. Gamgee, an eminent Veterinary Surgeon, of Edinburgh, calculates that to keep up a dairy of thirty good milkers, from 50 to 60 must be purchased annually, and this because, on an average, a cow is dry eight months after calving; and what with sickness and death, it is, he thinks, a fair calculation that to keep a dairy of thirty cows in milk, sixty must be annually purchased. Spaying avoids the loss by æstromania, (bullers), and by the custom of having dairy cows bulled when intended for the butcher. The spaying of cows is unquestionably, observes Mr. Gamgee, the safest method of avoiding such losses. A spayed cow yields milk about twice as long, hence twice as much as that given by a cow under ordinary circumstances. She fattens readily, laying on flesh from the time she is spayed, but very rapidly after she has ceased to give milk. There is no loss as by pregnant cows, and spaying is the only and sure means of cure for æstromania. It seems pretty certain that the milk of a spayed cow is richer than that of any other animal. Grandval and Maumene found in 1000 parts of the milk from cows under ordinary circumstances, from 66 to 80 parts of cheese and butter; and in 1000 parts of that from spayed cows, 101, or 117, or 150 parts. An analysis of 1000 parts of the milk of a cow before and after it was spayed in the Royal Veterinary College of Turin, gave the following results:

	Before.	After.
Water	864.40	855.50
Butter	42.20	50.10
Milk and Soluble Salts	52.10	37 80
Casein (curd) and unsoluble Salts.	41.30	56.60

Domestic.

Pickling and Smoking Hams and other Meats.—We use the same process for preserving both hams and beef. When cut up, the beef should lie a few days before this operation, rub carefully with fine salt, especially about the bone in the hams, and leave them to drain a few days on a plank; then pack them loosely in a barrel, and cover with a brine made as follows: Six gallons of water, nine pounds of salt, one quart of molasses, three pounds of brown sugar, three ounces of saltpetre, and one ounce of saleratus. Boil the whole well, and skim, and when cold pour it on the meat, which should be entirely covered by it. This will make brine enough for about one hundred pounds. This is the celebrated "Knickerbocker pickle," recommended by the late Judge Buel, and we are satisfied of its excellence by its long trial. At the end of three weeks, take up the hams and repack them, and after lying in the brine as much longer, they are ready for smoking.

Hickory wood and cobs make the best smoke. While caution is used that they are not too near the fire, they had better not freeze while being smoked. In this case the smoke only condenses on the surface and blackens it, but does not penetrate the meat. In fact, freezing at any time is of no benefit to the quality of hams or any other meat, but has a tendency to leave them dry. Smoke the hams to a light-chestnut brown, not to a black color. When well cured, the hams may be very conveniently and perfectly preserved for use, by surrounding each one with a loose bag made of close cotton cloth. This should be tied tightly about the strings of the ham, so that neither bugs nor flies can enter. Hang them from the rafters in a well ventilated garret, and usually they will escape both mould and insects, and improve by age for one or more years.

We have also kept hams by packing in fine salt. If it is dry, and kept in a dry place, it answers well. They will not absorb much more salt; but if damp, they may become perfectly saturated. We have also packed in clean, dry ashes, but the result was not very satisfactory.

We repeat the requisites for curing sound pork. Sweet, tight casks; plenty of pure salt, so that some shall remain undissolved; the meat to be cooled but not frozen, and kept at a moderate temperature, covered with a saturated brine.

Lard should be tried as soon as convenient. It must not lie in a close heap while warm, or the part about the kidneys will become tainted. In cutting it up for trying, remove all the lean. Use a very moderate heat, especially at first, and cook till the scraps turn of a light brown color and settle. It is then ready to be strained, and may be depended upon to keep perfectly.—*Homestead.*

Arts and Manufactures.

Defects of Calf-Skin Leather.—We have heard of persons purchasing several pairs of boots at once, in order to lay some

of them away for long keeping, under the impression that leather when kept in a dry situation improved in quality by age, like oil cloth. Calf-skin leather, when made into boots, deteriorates rapidly. It is subject to a species of dry rot—eremacausis; and in the course of three years it becomes as tender as a piece of brown paper. Dealers in boots and shoes experience a considerable loss from this cause when such articles are left on their hands for more than two years. This dry-rot in calf-skin boots first appears at the edge near the soles, in the form of a black glassy sweat. resembling varnish, and from thence it gradually proceeds until the whole leather becomes rotten. The application of grease rather accelerates than arrests the progress of this decay; such leather endures much longer when worn on the feet than when laid aside in a dry situation, but whether this decay is caused by the grease used by the curriers, or is some peculiarity in the skin, is not known. Cow-skin and kip leather do not seem to be subject to this rapid deterioration, but all kinds of calf-skin, even the very best French, is just as subject to it as the poorest qualities.—*Scientific American.*

Editorial Notices, &c.

COTSWOLD SHEEP.

A correspondent enquires, what is the origin and history of Cotswold sheep, and their principal characteristics?

It would occupy more space than we can conveniently spare at present, to go minutely into the above questions. The origin of breeds generally is more or less involved in obscurity. Certain it is, that the Cotswold sheep are among the oldest recorded native breeds of the British Islands, and that they derive their name from a tract of low calcareous hills, (Oolitic) in Gloucestershire. We find them mentioned as early as the beginning of the fifteenth century, and it is stated that certain of these sheep were, by permission of King Edward the Fourth, exported to Spain. At that period, and for two centuries afterwards, the Cotswold Hills formed broad, unenclosed, and bleak tracts of country, affording no natural shelter, but covered with a short sweet herbage, similar to what is found on the Chalk Downs. During the present century these high grounds have been brought under a superior system of management, and cultivation and shelter have done much to increase the produce of the soil and to increase the number and improve the quality of the sheep.

The Cotswolds were formerly of greater bulk of body, coarser forms, and yielded a larger amount of wool than characterises them at present. Some seventy or eighty years ago they were crossed by other breeds, and afterwards by the New Leicesters, the effect was to diminish the bulk of body, and lessen the weight of the fleece, and to impart a greater delicacy of form and constitution, to an extent unsuited to the exposure of their native hills. For the last thirty or forty years the system of crossing has been in a great measure abandoned,—the breed has been improved from its own resources, more particularly in regard to its former qualities for bearing exposure, and yielding a heavy fleece, which, being now loose and long, adds to the appearance of their large proportions. They are without horns, and have white legs and faces, with a strong tuft of wool covering the forehead, more prominently in the male than in the female. The neck and forequarter are somewhat deficient when compared with the Leicester; the back is straight, body well ribbed up, with deep flanks, hind quarters square and full; the legs are clear, of moderate length and bone. They are hardy and active, and thrive on ordinary food. Their early maturity and disposition to fatten enable them to be brought to market at 12 to 15 months old at an average weight of 100 lbs.; at 2 years old they will weigh from 120 to 150 lbs. each. The fleece, which is closer upon the body than the Leicester, averages from 7 to 8 or 9 lbs. each. The staple is long, mellow to the hand, though somewhat coarse in quality. This breed seems, as far as it has been tried, well adapted to Canada, and we

have now quite a number possessing pure blood. To judge of the latter quality in a Cotswold, regard must be had to the before mentioned characteristics, and the respectability of the breeder or importer.

The American Short-Horn Herd Book.—We are indebted to Lewis F. Allen, of Buffalo, for a copy of the fourth volume of his "Herd Book," which we have noticed on former occasions, and the value of which is so well known to short-horn breeders as to require no additional comment from us. The volume is got up in the same style as the preceding ones, and contains nearly three thousand original pedigrees, with some good portraits of animals. The pedigrees of the bulls in this volume reach the 3622d—the third volume closing with the 2468th. The pedigrees of the cows and heifers are yet more numerous. Mr. Allen well deserves the thanks and support of short-horn breeders on this continent, for his enterprise in originating and continuing this work. There may be errors, which are very difficult to avoid in a work of this sort, especially at the commencement, when the pedigrees have to be rescued from an immense mass of confused and often conflicting documents; but breeders on this side of the Atlantic, are placed by Mr. Allen in a very different position to that in which they would be without this publication, when they would have no public medium through which to establish permanent pedigrees for their stock, except that of recording them in the English Herd Book, which would obviously be of much less general convenience, and would be considerably more expensive. This volume is, we believe, sold at Five Dollars, and is forwarded upon order, by Mr. Allen, from Buffalo.

Back Numbers.—We are in want of the first six back numbers of the present year, especially Nos. 3 and 4, and will pay two cents each for them, on delivery at the office. Of course, we cannot pay by post for single copies, as the postage would amount to three times as much as the sum, but parties having copies in good condition which they do not intend to preserve, would oblige by handing them to the Secretary of their society, to be forwarded by him in a parcel to this office, when we would remit the amount for them, or give credit for them on future orders.

We regret having been obliged, since 1st April, to send off orders without supplying the back numbers. We will supply the numbers wanting still, if we can get them in; otherwise we will return the proportionate amount of the subscription paid, or supply additional copies of the present year, to make up for the amount, at the reduced rate of subscription from 1st April, or we will give credit for the amount overpaid on next year's accconnt.

After this date, we cannot supply any new orders for the back Nos. previous to that of 1st April. From 1st April to the end of the year, the subscription price is for single copies 37½ cents. Nine copies for three dollars.

Our Subscription Premiums. — We have been unable to make up our list of prizes for the present number. It will, if possible, appear in our next.

Prize Reports.—The reports from Societies being very numerous, as well as voluminous, require a considerable amount of time and work for their examination and comparison. The awards of prizes will be duly announced after they have been decided upon.

Leap Year.—A Scotch statute of 1,228 reads as follows:—"It is statut and ordaint that during the reine of her maist blissit Majestie, ilk forth year, known as leap year, ilk maiden layde of baith high and low estait, shall hae liberty to bespeak ye man she likes; albyit, if he refuses to take hir to be his wif, he shall be mulcted in ye sum of ane poundis (£1) or less as his estait moi be, except and awis if he can mak it appear that he is bethrothed to ane woman, that he then shall be free."

Market Intelligence.

TORONTO MARKETS.

Toronto, April 13, 1860.

The market to-day was limited, and the supply of grain small.

Fall Wheat—225 bushels sold at from $1 20 a $1 38 per bushel; the average for prime being $1 35 per bushel.

Spring Wheat—55 bushels sold at from $1 03 a $1 06½ per bushel.

Peas—175 bushels went off at from 60c a 63c.

Oats—125 bushels sold at from 36½c a 37½c.

Barley nominal at 65c a 66½c.

Rye 65c to 70c per bushel.

Timothy Seed $2 75 a $3 50.

Clover $5 a $5 25.

Hay $10 a $18 per ton.

Straw $6 a $9 per ton.

Potatoes 20c a 27c per bushel.

Butter—Fresh, 18c a 20c per lb.

Eggs plentiful, 8c a 10c per doz.

Beef $5 a $6 per 100 lbs. on foot.

Sheep $5 a $7 each.

Calves $4 a $7 each.

Pork dull a $6 per 100 lbs.

Fowls 40c a 50c per pair.

Tukeys $1 a $1.20 each.

Flour—Superfine No. 2, $4 35 a $4 40; superfine No. 1, $4 65 a $4 75; fancy $5 10 a $5 25; extra $5 70 a $5 75; double extra $6 a $6 25.

MONTREAL MARKETS.

Montreal, April 13.

Flour firm with more demand; No. 1 superfine $5 15 a $5 20; No. 2 superfine $5; fancy $5 50 a $5 60; extra $6.

Wheat—Receipts small; Upper Canada spring would bring $1 15 a $1 18; ex-cars $1 20 offered for May delivery.

Peas—Good demand; sales 10,000 bushels for May delivery at 80c.

Ashes—Fair demand; pots $6 10 a $6 15; pearls $6 40 a $6 45.

NEW YORK MARKETS.

New York, April 13, 1860.

Flour—Receipts 835 barrels; market firm with fair demand; sales 15,000 barrels at $5 32 a $5 35 for superfine State; $5 40 a $5 50 for extra State; $5 50 a $5 35 for superfine Western; $5 45 a $5 75 for common to medium extra Western; $6 a $6 15 for inferior to good shipping brands extra round hoop Ohio. Canadian flour is firmer; sales 1400 bbls. at $5 60 a $7 25 for extra. Rye flour is steady at $3 65 a $4 40.

Grain—Wheat—Receipts 1126 bushels; market heavy, and 1c a 2c lower; sales 12,000 bushels at $1 20 for Milwaukee club; $1 65 for white Michigan, and $1 40 for red State. Rye firmer; sales 1500 bushels at 85c. Barley dull and heavy; no receipts. Corn—Market dull and declining; the sales are 13,000 bushels at 74c. delivered, for mixed western. Oats quiet, at 44c. a 45½c. for Western, Canadian and State.

Provisions—The pork market is quiet; the sales are 900 bbls. at $17 37 for old mess; $17 62 a $17 75 for new mess; $13 for old prime, and $14 06 a $14 25 for new prime. Beef unchanged; sales 375 bbls. Lard is active, sales 600 bbls. at 10½c. a 11⅞c. Butter is in fair request at 11c. a 13c. for Ohio.

BUFFALO MARKETS.

Buffalo, April 13.

Wheat—is quiet. There appears to be more disposition on the part of holders to meet buyers at the figures of yesterday; but the latter held off, and there is evidently a difference of 2c. in their views. A sale of 4460 bushels prime white Indiana was made in the afternoon yesterday at $1 45, and a lot of 1700 bushels Canada club changed hands this morning at $1 11.

Corn—continues very quiet. We hear of no sales, and therefore resume our quotations of 60c. for car-load lots from track, and 64c. a 65c. for prime from store.

Oats—nominal; 34½c. a 35c. for Canadian from track.

Barley and Rye—dull and no sales.

Peas—Market firm; sales 450 bbls at 60c. a 62½c.

Provisions—dull, and no sales.

Advertisements.

IMPROVED SHORTHORNS.

THE HON. ADAM FERGUSSON, WOODHILL, WATERDOWN, P. O., will have Seven Thorough-bred Durham Cows to calve in Spring. These cows are in calf to "ETHELBERT," bred by Samuel Thorne, Esq., and have a large portion of "DUCHESS" and "BATES" blood. They may be seen at any time at Woodhill, within a half hour's walk of Waterdown Station, G. W. R. R.

Orders for bull calves must be sent by the 1st of March. Full pedigrees will be furnished. Price of each calf $60.

Four of the Cows will be sold at moderate prices.

Woodhill, Jan. 2nd, 1860.

YONGE STREET SEED STORE AND FLOWER GARDEN,

Established 1836.

Fresh Garden, Field and Flower Seeds, for Spring sowing.

THE Subscriber begs to inform his friends and the public, that his stock of Fresh Seeds is now complete, and very extensive, embracing almost every sort of Seed that is adapted to the country.

The stock of Agricultural Seeds is large and well selected, and the vitality of each sort being fully tested, the genuineness of the seeds may be fully relied upon.

Comprising a large stock of:—Spring Wheat, Spring Tares, Tartar and Poland Oats of the most approved kinds; Field Peas, including Golden Vine, and other approved sorts, White and Black Eyed Marrow Fats; Barley, two and four-rowed; Imported Purple and Green Top Swedish Turnip, Imported White Globe do., Imported Yellow Aberdeen do., Imported Six-weeks or Stubble do., Imported Red Round, Red Globe and several other sorts of Turnips; Long Red and Yellow Globe Mangel Wurzel; Sugar Beet and Field Parsnip; Large White Belgian Carrot and Spring Rape; Long Orange, Red, Surrey, and Altringham Carrot; Timothy, Orchard, and English Rye Grasses; Red and White Dutch Clover; French Lucerne, Cow, and Hungarian Grasses, Alsike or Perennial Clover; Yellow and White Millet; Early Potatoes of the most approved sorts; Corn, 8 rowed Early Canada, King Philip, Yellow Dutch, and several other sorts.

Horticultural Books and Garden Tools, Draining Tools, One Horse Ploughs, and Cultivators of all kinds.

The Subscriber has also a full and general assortment of all kinds of Garden Seeds suitable for the country, a catalogue of which, with directions for sowing seeds, can be had gratis.

Merchants and Agricultural Societies ordering seeds in bulk will be supplied at wholesale prices.

Complete assortment of Garden Seeds neatly put up in small papers, with directions for sowing, and sold by the box, containing 150 papers, at very moderate prices.

Twenty packages of Flower Seeds, choice sorts, will be sent free by post to any part of the province, to the address of any party remitting $1, free of postage, or 25 packages, postage unpaid.

JAMES FLEMING,
Seedsman to the Ag'l As. of U. C.

Toronto, February, 1860. 6-t

SEEDS! SEEDS! SEEDS!

TORONTO SEED STORE!

Corner of Front St. and West Market Place.

THE Subscriber in returning his sincere thanks for the partonage so liberally extended to him for the past four years, since commencing the business, would now beg to direct the attention of his friends and the public, to his large and well assorted stock of

FRESH GARDEN, FIELD AND FLOWER SEEDS,

All of which have been procured with his usual well-known care and practical knowledge from parties in Europe and America, personally known to him; he would therefore venture to say that the quality of all his Seeds cannot be surpassed in this Country or anywhere else.

FARMERS and GARDENERS would do well to examine before purchasing elsewhere, for it is their interest particularly to procure the best of seed to be had, and SPURIOUS SEEDS are often offered by unscrupulous parties under pretended inducements, which, if depended on, may prove fatal to crops, on which purchasers depended for a living.

☞ No seed is sold in his establishment without first being carefully tested.

Large supplies of all the leading varieties of the different kinds of seeds, most suitable to this climate, are constantly kept on hand.

Catalogues with full directions for sowing and raising vegetable and other seeds, may be had gratis, on application; and being a practical gardener of 19 years' experience, he will always feel happy to give all necessary information, personally, regarding the mode of cultivation, selection of varieties, &c., gratuitously to any of his customers.

For the convenience of those who wish to stock a small Garden with Vegetables and Flowers, but are unacquainted with the proper quantities for that purpose, he has collections ready put up.

Price of Collection of Garden Seeds, $2.
" " Flower Seeds, 1.

J. A. SIMMERS,
Seedsman,
Corner of Front St. and West Market Place.

Toronto, March 12, 1860. 6-t

West Riding of York Agricultural Society.

THE SPRING SHOW of this Society will be held at WESTON, on Tusday, 24th April. For particulars see bills.

ST. GEO. SCARLETT, *Sec. & Treas.*

Carlton West, March 28th, 1860. 7-2t

Five Splendid Strawberries.

HOOKER–Very productive; large, beautiful, and of unequaled quality.

Wilson's Albany,—Exceedingly productive; fine for market.

Triomphe de Gand—Immense size; splendid appearance, and *high flavor.*

Pyramidal Chilian — Very handsome; productive, hardy, and *good flavor.*

Large Early Scarlet—The earliest; productive and *excellent.*

As it is impossible to secure all the excellencies of this most popular fruit *in one variety*, we offer the above as comprising, in five sorts, the various points desirable.

We again confidently RECOMMEND the HOOKER, as by far the best for family use, if only one sort is to be planted—combining a greater number of excellencies than any other variety.

☞ All of the above have perfect flowers, and will produce excellent crops, if planted singly or together.

☞ Order directly from the Nurseries, to be sure of the *genuine*—"The Hooker" originated on our grounds.

Money, at our risk.

PRICES—(Securely packed to be forwarded by express):

Per 100 plants of any of the above varieties,.....	$2 00
" 100 plants 20 of each variety,....	3.00
" 500 plants 100 of each variety,...	7.50
" 1000 plants of the Hooker.....	10.00

H. E. HOOKER & Co.
Commercial Nurseries,
March, 1860. *Rochester, N. Y.*

HUNGARIAN GRASS.

This valuable grass was introduced into this neighborhood three years since by our County Agricultural Society, and has given very great satisfaction to all who have tried it. Its ordinary yield is FOUR TONS TO THE ACRE, and in some cases SIX TONS have been cut. Cattle and all kinds of Stock are very fond of it, preferring it to Timothy. Its fattening qualities too are believed to be superior to those of any other known grass.

The Subscriber has obtained a quantity, and will send to any person making a post-paid application, sufficient to sow one-third of an acre for One Dollar, or One Bushel for Five Dollars.

All seed will be sent free of charge.

ARCHIBALD YOUNG,
Treasurer,
Lambton County Agr. Society

Sarnia, February 10, 1860.

SPRING FAIR.

TOWNSHIP OF GORE OF TORONTO AGRICULTURAL SOCIETY will hold their Spring Fair at CLAIREVILLE, on the Third Wednesday in April, 1860, and their Fall Fair at MALTON, on the Third Wednesday in October.

By order of the Board.

J. P. DELAHAYE,
President.

Gore of Toronto, March 19, 1860. 7-2t

AYRSHIRE CATTLE.

PATRICK R. WRIGHT, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young BULLS and HEIFERS for sale. His herd is well known as the best in Canada West, and his terms of sale are liberal.

☞ Full Pedigree of all animals—U. C. Stock Register.

April 2, 1860. 7-6m

YONGE STREET SEED STORE.

CHOICE VEGETABLE & FLOWER SEEDS FREE BY MAIL.

THIRTY SIX VARIETIES FOR TWO DOLLARS.

THE Subscriber, wishing to give parties who reside at a distance an apportunity to test the quality of his Seeds, will, on receipt of $2, free of postage, send free to any Post Office in Canada, 24 Full Sized Papers of VEGETABLE SEEDS, many of them containing half an ounce of seed, and 12 Papers of Choice FLOWER SEEDS, with Descriptive Catalogue and Box included—the seeds to be of my own selection. None but the most useful and desirable varieties will be sent.

JAMES FLEMING.
Seedsman to the
Agricultural Association of U. C.

Toronto, Jan., 1860.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Advertisements—Five cents per line each insertion.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first six numbers of the current volume, the subscription price of the "Agriculturist" from 1st April to the end of the year, will be 37½ cents per copy; nine copies for three dollars.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, MAY 1, 1860. No. 9.

HINTS FOR MAY.

This is a busy month to the Canadian farmer, as all the important spring operations on which mainly depends the future harvest, should now be completed. Peas, oats, and barley, if not sown before, should now be put in without delay. And the earlier spring wheat is committed to the ground the better, provided the soil is in a suitable condition. The *Fife* variety, however, admits of later sowing, and many farmers cultivate largely this sort, which they sow up to the middle, or even end of the month; chiefly with a view to escape the attacks of the midge. This variety is very hardy, and is seldom injured by rust. Those who have land not yet put in with a crop, if it be in a proper state for wheat, may yet sow it with this kind with a good prospect of success.

Root crops are yearly growing into importance in this country, and their value can scarcely be overrated. They should all be planted in rows, thereby allowing the use of the hand or horse-hoe. Cultivating the ground during the period of growth increases the weight of the crop and keeps the land porous and free of weeds. Carrots and parsnips, if not sown already, should be proceeded with immediately, as it is an advantage to get these crops fairly under weigh previous to the setting in of dry, hot weather. For a field crop the white or Belgian carrot affords much larger produce than any other variety, and it is now well known to be excellent food for horses, cows, sheep and swine. As there is too much reason to fear that the late severe frosts have materially injured young clover, as well as fall wheat, in many localities, and that hay will probably be scarce and dear this year, farmers should embrace the present opportunity of mitigating the contemplated evil by sowing a greater breadth of carrots, parsnips, turnips, mangels, &c. With a good supply of these productions and straw, stock may be carried through the winter and spring with a small amount of hay. The application of the roller to such fields of wheat and clover as have a moderate quantity of plant alive, will, in most cases, be found highly advantageous. It is surprising what wheat will sometimes do, although apparently dead, provided the soil is good and the growing season propitious.

Land intended for turnips should now be got into a finished state of preparation; thoroughly and deeply worked, with the

manure, where farm-yard dung is used broadcast, perfectly incorporated with the soil. Mangel-wurzel requires a similar preparation to turnips, and should be sown in drills not less than 30 inches apart as soon as possible. In good, deep soils the long red variety will yield the heaviest returns; but upon poorer and shallow lands the yellow globe is to be preferred. Mangels are far preferable for milch cows to turnips. They impart to the milk and butter no unpleasant taste, and by careful storing may be kept in a fresh condition till late in the spring. They are, too, a more certain crop than the turnip, easily cultivated if the land is well prepared, and but little affected by insects or disease. The principal thing is to get a healthy state of growth, before the hot, dry weather sets in. Ground for potatoes ought now to be got into a prepared state, and the earlier sorts planted. This crop must at the best be considered precarious; but by planting good sound seed, (especially if brought from different soils at a distance,) on dry, well cultivated land, containing a sensible amount of the carbonate and sulphate of lime, either naturally or artificially, a remunerative return may be reasonably anticipated.

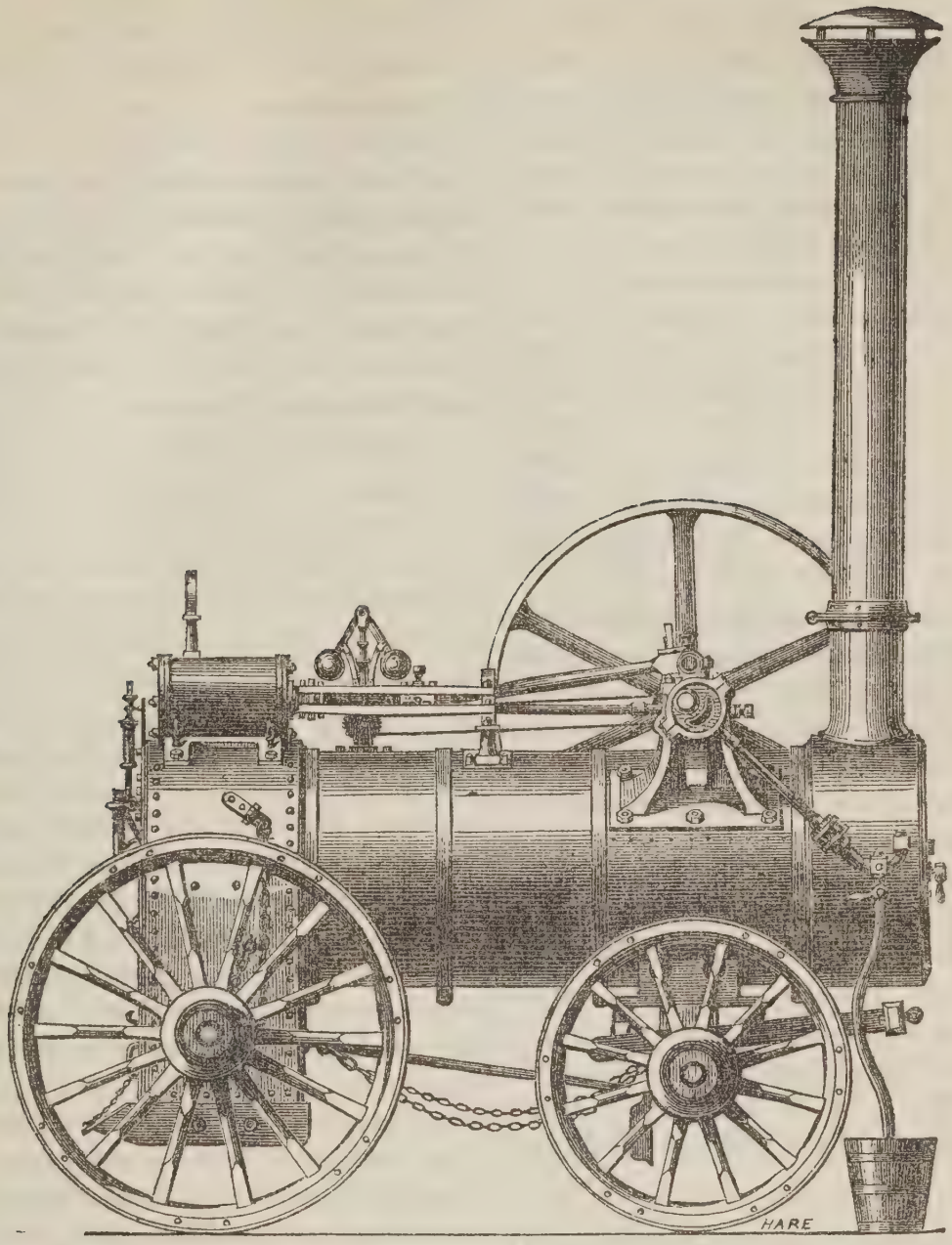
Ewes and lambs, and live stock generally, still require the closest attention of the farmer. The present cold weather keeps back vegetation, and it will yet be some time before the grass will afford a good bite. Hay in many places is used up, and sheep and cattle have to depend upon other sorts of food, and it is surprising how the pinching days of early spring may be got over, by cooked provisions, such as roots, linseed, bran, &c. Cattle, if possible, should be in a thriving state when turned out to grass, and newly lambed ewes, if not given extra care, will become weak and sickly; and peculiarly liable, with their progeny, to the attacks of fatal disease.

PORTABLE STEAM ENGINES.

The progress of agricultural mechanics of late years has been astonishingly great; producing changes and improvements in the art of tillage almost as great as those which were accomplished at the latter end of the last century and the beginning of the present, by the inventive genius of Watt and Arkwright, in British textile manufactures. Steam, as a motive force, is not now confined to the workshop and manufactory, but it may be seen ploughing and cultivating the fields, threshing the crops and preparing them for market, slicing and cooking roots, and cutting hay and straw, as food for cattle. It is evidently distined to do for the farm and homestead, what it has already so fully accomplished in other branches of industry, to abridge or displace animal power, to lighten and elevate manual labor, and to increase and cheapen the primary necessaries of human life. It must therefore be regarded as a general blessing to the race.

We present our readers in the accompanying engraving, a representation of one of Clayton, Shuttleworth & Co.'s outside cylinder Portable Steam Engines, as seen in its position when working. Portable Engines are those in which all the parts are self-contained, requiring no fixed or permanent location, but can be easily moved from one place to another. They are now extensively used in the British Islands, and it is now quite common for even small farmers to hire them for threshing grain, as was formerly the case with the ordinary threshing mills, moved by horse power.

In the engine, which the engraving illustrates, the cylinder and all the working parts are, as shewn, on the outside or top of the boiler, and can be seen and got at by the person in charge at a moment's notice. This is very important, as sometimes most serious accidents occur to Portable Steam Engines when the working parts are wholly or partially excluded from the eye of the driver. It will be seen by reference to the drawing, that these Engines are fitted with governor, glass water guage, guage cocks, blow off cocks, and all appen-



dages necessary to render them complete. It has a crank shaft which is much superior to the old over nick crank, and admits of the fly wheel being placed on either side of the boiler, or a pulley being placed on the opposite side to the fly-wheel of dimensions suitable for working any additional machinery.

The boilers of these Engines are made on the most approved construction, the result of long continued experiment, since fully confirmed by experience. The cylinder, as well as the boiler, is clothed with hair felt, then lagged with wood, which is again covered with sheet iron, giving to the whole a very neat appearance, and adding very materially to the economy of working as well as facility for cleaning.

In selecting and comparing the effectiveness and prices of portable steam engines, it is of the utmost importance to ascertain *the size of the cylinder*, in which lies the *real* power of the Engine. It is only by obtaining this information that one can accurately judge of its power and capability; for stating an engine to be so many horses' power is very indefinite, and has long since been abandoned by Locomotive and most Marine Engineers, and, if used at all, is only spoken of as nominal.

A waterpoof cover of ample dimensions for covering up and excluding the engine

from weather or dirt, and all the necessary tools and apparatus are provided without extra charge. When travelling the chimney is lowered into the crutch. The following are the prices in sterling money, subject however to slight variations, according to the market price of iron, &c.:

	Diameter of Cylinder.	Price.
4 horse power....	$6\frac{1}{4}$ inches..	£165
5 "	7 "	180
6 "	$7\frac{3}{4}$ "	200
7 "	$8\frac{1}{2}$ "	215
8 "	9 "	230
8 two cylinders...	$6\frac{1}{4}$ in. each.	250
10 one cylinder....10	inches..	270
10 two cylinders...	7 in. each.	290

Messrs. Clayton, Shuttleworth & Co. are distinguished for the superior quality and finish of their Engines, and have obtained the gold medals, and first class prizes, of the National British Societies, and those of several countries on the European continent. Up to 1858 they had manufactured nearly three thousand of these portable engines expressly for farm purposes. Their manufactory is at Lincoln; and a stock of all their various engines, machines, &c., may be seen at 78 Lombard Street, London; and also at the stand No. 8, of the Agricultural Department of the Crystal Palace, at Sydenham.

THE UPPER CANADA PROVINCIAL EXHIBITION.

We learn that permanent grounds have at length been secured within the city limits of Hamilton, and that a large and convenient Exhibition Building, that will have no inconsiderable amount of architectural and picturesque beauty, is about to be commenced forthwith. The site selected is the dry and elevated ground that was occupied by the Provincial Exhibition when last held in Hamilton; it is very conveniently situated, and commands extensive and beautiful views. The area will comprise, we understand, upwards of 15 acres. The City Corporation, aided, we presume, by grants from the County Council and Agricultural Societies, have undertaken the erection and preparations.

The precise time of holding the Exhibition is not yet determined. As there is a high degree of probability that His Royal Highness the Prince of Wales and suite will be in this section of the Province in September, the Board of Directors will endeavour to arrange the time, so as to meet that event, if practicable.

Hamilton is a most convenient locality for getting up a large exhibition, both of visitors and materials, and from the known enterprise and force of character of its citizens, we may safely conclude that nothing will be wanting on their part towards securing success. We trust that our farmers, mechanics, and all classes of contributors, will nobly exert themselves to shew the future Sovereign of our Empire, the results of their skill and industry, and the immense capabilities and resources, comparatively undeveloped though they be, of this extensive Province. A Grand Exhibition has been determined on at Montreal, which must mainly consist of manufacturing, mechanical, and artistic productions, and to which the Government have recommended a grant of $20,000. We hope that our Upper Canadian mechanics and manufacturers will do what they can to send contributions to Montreal. And let us in Upper Canada shew the Prince what we can do in Agriculture and the Mechanical Arts. The Government will no doubt render assistance worthy the occasion. We trust, therefore, that all Agricultural Societies, Mechanics' Institutes, manufacturers and in short every influential individual who has the honor and welfare of his country at heart, will at once set about putting means into active operation in their respective localities, with a view of making our next annual gathering in September far to surpass any thing that has gone before. *Not a day should be lost in preparing for this great national event, throughout the country.* Such another

opportunity cannot again occur for very many years, and we should do all we can, united as one man, to make the most of it.

It is satisfactory to know that the financial condition of the Province is so far improved that the Government has felt itself justified in recommending to Parliament the full amount of aid allowed by the law to Agricultural Societies for the present year, placing them upon the same footing as in 1858. This information will be received with unmingled satisfaction throughout the whole extent of the Province.

THE TURNIP ROT.

Complaints of the decay in Turnips, including Swedes, appear to have much increased of late in England, so as to cause serious apprehension in the agricultural mind, relative to the future destiny of this invaluable crop; which a high authority has pronounced to be "The British Farmer's Sheet Anchor." Turnips, both white and yellow, including the different kinds of hybrids and the hitherto hardy and invulnerable swede, have, of late, become extensively diseased, being effected in a manner somewhat similar to the potato, inducing decomposition either before they are taken from the ground, or after they have been pitted. The late winter has been unusually severe in the British Islands, and both turnips and mangels have suffered severely by exposure and the effects of decay. A large amount, we understand, of selected bulbs intended to bear seed, and which are planted out in the fall, has been destroyed, so that turnip seed is likely to be of a high price next year; we learn indeed that it is already advancing. Various theories are proposed to account for the failure in turnips, some ascribing it to the repeated application of artificial manures; but from careful examination of numerous instances, such would not appear to have been the case. We strongly suspect that the frequent bringing of turnips into a fourth or fifth year rotation, which has now been for half a century extensively practised in the old country, involves causes that may ultimately be found sufficient to account for the disastrous result. Twenty years ago, or more, serious complaints were made in Norfolk that their turnip crop was diminishing, and many were induced to extend their rotation from a four to a five years course. Even in Canada we know some old settlers, who say that they find it far more difficult to raise turnips now than formerly, when their land was in a fresher state. The following extract from a letter of a correspondent, published in a recent number of *Bell's Weekly Messenger*, will be read on this side the Atlantic with interest:—

"This question is destined at no very distant period to make a revolution in the present four-course system of growing turnips. I venture to predict that before the year 1870 arrives, white turnips will cease to be grown on three-fourths of the arable land in this district without being previously prepared, by either marling or liming. It is only a question of time; some fields will grow two or three more crops; other fields (and they are not a few) have grown their last healthy crop of white turnips. My experience goes to prove, that each year adds to the difficulty, not only of growing a large crop, but of growing a crop at all, such as will stand the winter, and are worth eating off with sheep at this time of the year. Ten or twelve years since my farm began to show symptoms of disease, and each year since has added to the number of acres, till at the present time I have not an acre of land on the farm that I consider safe for turnips, that has not been either marled or limed. I look upon the surface soil as about exhausted, and until such soil gets a sensible dressing of from 50 to 100 cubic yards per acre, of marl, clay, or chalk, or its equivalent, we shall make no permanent improvement in the soil, and such a "tender annual" as the turnip is at present will every year become more and more subject to premature decay. We must turn our attention to a hardier plant than the turnip if we begrudge the expense, or any other circumstance forbids us laying out so much money per acre as a dressing with marl requires. The cultivation of a substitute for the turnip is a subject well worth the careful attention of farmers, and landlords

would do well to come forward and assist tenants in this matter, instead of binding them down by agreements to the ruinous four-course system. Turnips showed very evident signs of disease during the latter part of last summer, previous to any injury being done to them by frosts, and I take to myself the credit of seeing, and saying at the time, that they would rot very seriously, if the winter were at all severe. They were predisposed to disease, hence the decay amongst them at present. I hold Liebeg's opinion, that we are exhausting the land of its most valuable constituents, by our system of farming; but I differ from him, in believing that sewage is the *only* source from whence to regain those valuable constituents, as I believe the bowels of the earth contain an unlimited supply, and think my experience with marl, clay, &c., has proved the soundness of this opinion.

SEED GRAIN.

We find in a recent number of *Bell's Weekly Messenger*, a reference to a subject that was much discussed some years since on the tendency of seed grain of the highest quality to degenerate by cultivation. It was maintained that having formed a judgment on the average weight of grain which particular soils produced, grain intended for cultivating on such soils should be of lighter weight, as in that case it would naturally tend to improve. Whereas if the heaviest and most perfect seed was sown, it would not only not improve, but would in most instances actually deteriorate. This was asserted to be a natural law, applicable to the animal, as well as the vegetable kingdom. The question does not at all relate to the *purity* of the seed, but simply to its weight, or as it was termed, its perfected development. It must, we think, be evident that this is by no means so simple a question as this theory would seem to assume; for climate, soils, modes of culture, manuring, and differences of seasons, must be also regarded as important elements in the result.

We give below an extract from Mr. Cowan's paper, which originally appeared in the *British Farmers' Quarterly Magazine*, conducted by the late Rev. Henry Berry, the well known breeder of short-horn cattle, and who energetically opposed Mr. Cowan's theory in reference to the breeding of animals:

"There appears to be a limit set by climate, cultivation, situation, and local circumstances, to the quality of the produce of the soil. All cultivated vegetables have a tendency to degenerate, but this tendency is more than counteracted by the cultivation bestowed, until they arrive at a degree of perfection beyond which it does not appear possible by any cultivation to push them; and if this is attempted, a recoil is induced, and a degree of degeneracy and inferiority in the produce appears to be inevitable. This is perhaps particularly the case in annual and biennial plants. Suppose a very prime sample of wheat is presented to us, such as might induce a farmer or corn factor to pronounce it one of the best he had ever seen, the presumption is, that this fine grain grew on land of the best quality, which was prepared in the best possible manner for it; that the circumstances attending its growth, ripening, harvesting, &c., had been particularly favorable; and that it had, in fact, arrived at the utmost perfection which it was capable of attaining. Now, if this fine grain is used as seed what will be the result?—of what quality will be the produce? Will it not be found to have degenerated—to be much inferior to the seed used? Improve it cannot; that it will remain stationary is just possible, but that it will 'go back' is almost certain. When grain is used which has reached the maximum—wheat weighing, say 66 lb. per bush., barley weighing 58 lb. per bush, oats weighing 48 lb. per bush.—is the produce reaped equal in quality to the seed sown, or is it not always a few pounds, and often a considerable number of pounds, lighter? The plants appear to be constitutionally incapable of producing an equal to that grain from which they sprung, because it had attained that degree of perfection beyond which it could not possibly go, and, therefore, retrograde it must for a season; but having done so it will advance again the following season, if climate, soil, and circumstances, are favorable; should these be unfavorable, it will continue to retrograde. If this doctrine is correct, it follows, that to raise a first-rate article as produce, we must use an article of lower quality as seed. Agricultural societies offer premiums for the best sam-

ples of 'seed wheat.' Many competitors come forward with splendid samples; bright, heavy, plump, and beautiful. The superlative best—if I may so speak—are selected for the prizes. The superiority in point of quality being thus settled, it is resolved, before awarding the premiums, to test the productiveness of the selected sorts; and for this purpose several agriculturists receive a portion of the seed, to sow on their respective farms. It is sown, reaped, harvested, and thrashed; and by-and-bye, out comes the judges' report, in something like the terms following:—'We find the quantity and quality so inferior that we cannot recommend the wheats for the Society's premiums'—just what was to have been expected. Grain of the weights I have mentioned, or approaching them, is about the limit fixed by our climate for their attainment; and if we sow them with a view of raising a better, or even so good, we shall find to our mortification, that instead of going forward, we have been going backward. Change of soil and situation have no doubt an invigorating influence on plants subjected to them; but no change of soil or situation can add improvement to a production which has already attained perfection, and those who have been attentive observers will be led to conclude that when vegetables, animals, or even the mental powers of man, attain an extraordinary degree of perfection, degeneracy in those particulars in which they have been superior seems invariably to await their offspring."

DESTRUCTION OF SHEEP BY DOGS.

We learn from a correspondent of the *Wellington Mercury* that great havoc among sheep has of late been made by dogs in the neighborhood of Guelph. Among the sufferers are Mr. McCrea, who lost nearly a score of valuable animals. Mr. Pipe had a choice flock of pure Leicesters, the original importation cost him $800, and we regret to learn that only two animals have escaped. Mr. Chipchase's flock has also suffered, and Mr. Brown, the veterinary surgeon of Guelph, had four or five sheep worried to death about the same time. The neighborhood of Guelph seems to have to have been peculiarly unfortunate in this respect, but it is too common to hear of the destruction of sheep from the same cause from various points of the Province, and the United States. It is high time that some effectual check to this enormous evil were applied. To individuals it is sometimes all but ruinous, and the prospective loss to the country is almost beyond calculation. The *people* should take up this question as one of common interest, and call upon the legislature and public bodies to institute a remedy; taking care to assist in carrying out the object by prompt and hearty *individual influence*. We cordially agree with the subjoined remarks of the correspondent of the *Mercury*, and consider it to be a duty to give them, or rather the cause they advocate, the benefit of our circulation:

Now, Mr. Editor, I fancy you and others, will think with me, that it is high time something were done, if possible, to stay the nocturnal marauding propensities of these sheep-worrying dogs. Cannot the County Council pass a by-law, or suggest, at its next meeting, an expedient to meet, in some measure, so important a case as this, in which the whole community, directly or indirectly, is concerned?

Who, let me ask, be his enterprise what it may, will for the future, feel even the slightest inclination to throw away time and money, and suffer also the trouble, anxiety and risk, (known only to myself and other importers) in bringing to this country improved breeds of sheep to be worried by dogs when he gets them home?

How is Mr. Pipe, more especially, to be compensated for his severe loss? Had that gentleman been fortunate enough to have secured the female produce of those valuable ewes and their offspring for the space of eight or ten years, what a little fortune would it not have been for him!—But to the agricultural community the benefit would have been much greater.

There is no denying that a dog, under proper control and for useful purposes, is a very valuable animal, but this is no reason why innumerable worthless curs should be allowed to roam the country at large, night and day, to the manifest injury of those who have no concern in them, and who can claim no remuneration for damages sustained through such trespasses.

If a wolf gets into your fold, and you can secure his scalp, you have a claim upon the government. But even, were you lucky

enough to obtain a dog's scalp, which hardly ever is the case, unless you happen to know its owner, what get you for that? Nothing! The incongruity is somewhat displeasing; let us, however, solicit and hope for a remedy.

From what I hear, in two of the cases named, Mr. McCrea and Mr. Pipe, the dogs tried to burrow under the stone foundation of the building that contained the sheep, but being there thwarted of their prey, they gnawed their way through the boards, and that in *both cases* a small dog, accompanied by a large one, was the aggressor!

If I had the power, Mr. Editor, I would pass a law that a man, finding a dog upon his farm or premises by day or by night, *unless he could give a good and satisfactory account of his intentions*, should be at liberty to shoot the same, without the intervention of Judge or Jury! This, I fancy, would induce *owners of dogs* of any value to keep them in a secure place, and the sooner all others are shot the better for the community at large.

I trust our worthy and enterprising friend, Mr. Stone, will be lucky enough to steer clear of the grievances herein alluded to, with his valuable flock of Cotswolds! But such even may be his lot, since neither stone, masonry, nor boarded barns appear impervious to these merciless and blood thirsty dogs!

Agricultural Intelligence.

TURNIP CULTURE.

At a recent meeting of the York Township Agricultural Society, Mr. Philip Armstrong read the following paper upon turnip culture:

Mr. Chairman and Gentleman,—After several requests, as the successful competitor in the last turnip match, under the auspices of the Etobicoke Agricultural Society, I have prepared a paper on the culture of turnips, which I shall now read. The reproach which is every day made to the husbandman, of his indifference towards new modes of culture, appears to me not to be well founded. He wishes first to see and compare them with the methods to which he has been accustomed; he has neither the knowledge nor the means of forming beforehand a just estimate of the advantages which they offer him; he has no alternative but to persevere in his old course till some neighbour, richer and more enlightened than himself, is able to present to him, by the new mode, results more advantageous than he has obtained from his own. Example is the only lesson profitable to a husbandman, and when his eyes and his reason are convinced of its goodness, he is not slow to follow it, and by no other means can improved methods of agriculture be introduced and propagated. A good agriculturist will, in the first place, make himself acquainted with the nature of his soil, in order to know the kind of plants best adapted to it, and as in each locality the soil presents shades of difference, more or less marked, according to the exposure, composition, depth, &c., the proprietor ought so to vary his crops, as to give to each portion of the land the plants for which it is best adapted, and thus establish a particular rotation of crops upon the several divisions of his estate. And now we come to the point in question, namely —the Swede turnip—a most valuable root either for domestic or animal use.

It requires no argument to convince a man of the real value of a good root crop after so many disappointments, owing to the ravages of the fly and other causes, I have devoted much time and attention to the cultivation of roots, and especially that of turnips, and by the blessing of Providence, for the last sixteen years, without intermission, I have been successful. And now the question may be asked, what is a good crop, and the mode of your cultivation? A good crop will range from eight to thirteen hundred bushels per acre; and the mode of cultivation is as follows:—Commence your preparations in the fall of the year, by giving a good manuring, spread it well and plough it in, very shallow, and then in the spring cross plough it as deep as possible; then give a light harrowing; allow it to remain in this state until you have finished your spring cropping. Then turn to your turnip land and plough and harrow as often as time and circumstances will admit, as there is no danger of too high a state of cultivation for this crop. The seed should be sown on the same day your land is made ready, if possible, either in drills or broadcast; if in drills, twenty-four inches apart at least, and two pounds of seed per acre; drills decidedly preferable. The time for sowing, from the first to the twentieth of June, but, as a general rule, I prefer finishing on or about the tenth, weather permitting. The land best adapted for the Swede turnip is either a clayey loam, or a light loam with a clayey subsoil; the former will yield invariably a better crop. And now we come to the fly, which of all things is most dreaded, and

many of my neighbors have got it into their heads that I have a something they know not of, as a preventive, and that something every farmer in Canada may have if he adopts the principle laid down, that is to say: a thorough good tillage and due attention until the plant is matured. Apply your cultivator and hoe freely, and that in good time. I cannot pass, however, without adverting to the old system of turnip sowing. The land was prepared, and perhaps laid several days waiting for rain or a good season to sow, as they would term it; then, if in drills, a deep opening made on the top of the drills, and the seed scattered in such a depth that it would be several days before the seed could germinate and the plants appear, and that in such an irregular manner and weak state that the fly would consume them as fast as they appeared. Hence, in many instances, the conclusion would be, the seed was bad. But on a careful examination of the drills, there would have been found a puny white stem, with the seed leaf nipped off by the fly. But within the last year or two seed drills have been introduced, and our farmers have been more successful. There is another great defect which I shall now point out, and allow me to invite you to the field, in order that I may show why I have recommended such a process of culture; for be it remembered we are only speaking with regard to our own soil and climate. As we enter the field we see a piece of ground, well prepared to all appearance, and very systematic; plants abundant, healthy, and strong, and even long after the bulbs are formed. But all at once we discover a change; first, a flagging of the leaf, then the leaves begin to decay, turn yellow and fall off, the turnips a very bad shape, and instead of a top like that of a turnip, a thick coarse stem; and if you examine them you will find they are affected at the heart, and before the time of gathering there will only remain the outside shell, and that of hard woody fibre. And now let us enquire into the cause. As you pass through the turnip patch thus affected, you will find in all cases the highest and lowest parts of the fields the worst; hence we discover the cause at once, and attribute it to too shallow a tillage; the roots in search of food have entered upon a harsh, stern subsoil, and this is the effect always produced, not only among the tender but even among the more hardy plants. And even our fruit trees in many instances are suffering very materially from the careless and indifferent manner in which they have been planted. The cause here spoken of may be produced as follows:—either by too shallow a tillage, or large masses of dry manure put on in the spring, and the low places may be suffering partly from wet, either from surface or under water; hence in the latter case drainage is necessary. With regard to the cost (I speak here of my own) and the price of turnips, what are they worth on the ground. Allowing, then, for my team at the rate of twelve and sixpence per day, labouring men at three and ninepence, women or boys at one and tenpence-halfpenny per day, the whole of the expenses from the preparing of the land until the turnips are carefully put away, and made safe for the winter, amount to six pounds five shillings per acre; then take the lowest average I have mentioned, eight hundred bushels per acre, at the rate of tenpence per bushel, amounts to £33 6d. 8d., then deduct the expenses, £6 5s., leaves a balance of £27 1s. 8d. per acre. But if the distance be great from a market I should only rate them at six pence per bushel, but might take a larger average than eight hundred bushels. Some may say how many loads of manure do you put on for the acre, and what do you value it at? Such questions as these we leave with the farmer, but the inquiries may be answered in this manner; it depends entirely upon the state of the land, and kind of soil; while some land would be in such a state as to produce a crop without manure, others might require twenty or thirty waggon loads. But I do not see why the turnip crop should be taxed for manure, as the successive crops will receive equal benefit. The turnip land is best adapted for barley or spring wheat, and may be seeded down, and thus you have at least four crops in succession. And now, gentlemen, let me say in conclusion, as this subject is intended for discussion, I have omitted much that might have been introduced, such as the nature of earths or soil, and their action upon vegetation, and also the nature and action of manures, and the influence and action of the atmosphere upon the plants.

BOARD OF AGRICULTURE OF NEW BRUNSWICK.

We have been favored by Professor Robb, the Secretary of the Board, with a copy of abstract of proceedings of the first annual session, held at Fredericton, in February last. A large amount of preliminary business was got through.

A great Provincial Exhibition was appointed to be held at Sussex Vale on the 2nd, 3rd and 4th October, 1861. It was agreed to memorialise the Legislature to allow a grant of £2,500, for the purpose of importing stock, consisting of Horses, Cattle, Sheep and Swine, with a view of improving the breeds of these animals in the Province. The Board offers three prizes of £15, £10 and £5 respectively for the 1st, 2nd and 3rd best Essays upon the Agricultural history and condition of any one or more of the counties of the Province. An extensive series of questions had been prepared and circulated among societies and influential individuals relating to the agricultural and industrial condition of the Province, with a view of obtaining useful and interesting matter for publication. Each member of the Board also agreed to prepare an essay or report upon some specific branch of agricultural practice, so that in due course we hope to see a useful and suggestive volume of Transactions. The Board is fortunate in securing the able services of Dr. Robb as their secretary, whose practical and scientific knowledge of agriculture, and the great zeal which he has for many years evinced in its improvement are well known and appreciated. His concluding remarks will not be uninteresting to our readers:—

"The task of tracing the gradual progress of each County from the state of hunting grounds to that of smiling fields and well tilled farms, is a most interesting one, and if the present generation pass away without engaging in it, the thread of the narrative may be broken, and the story pass into oblivion.

No battles are more full of interest than those of man with nature; no triumphs more noble than those which are won by civilization over barbarism; and no monuments seem more praiseworthy than those which are dedicated to the cause of Agriculture.

Each man may in his own sphere contribute something to the general result; and with a little effort and industry, the history of local progress among us may yet be recovered from oblivion. If the difficulties of the past have been overcome by the strong arms and patient endurance of the early settlers of this Province, there are surely no obstacles before *us* now which can be considered more serious than those which *they* encountered and subdued; let us therefore not prove degenerate, but by the example of their efforts, and by the aid of the foundations laid by them, press ever forward, until the products of our fields sustain and clothe the population of the country, and those of the forest and the mine, the factory, the sea, and the shipyard, become our proper sources of wealth rather than the means of mere subsistence.

We have attained to a high position already, and one which we conceive to be at least equal to that attained by any other people in the same time, acting under similar natural conditions. The Province is politically free, commercially progressive, and agriculturally prosperous. Let us hope that even these good things only indicate the dawn before the day."

Discorea Batatas in England.—A paper has recently been published in the *Irish Agricultural Review*, by Professor Buckman, of the Royal Agricultural College, Cirencester, England, giving his experience with this Chinese yam in England. As it formed a subject of considerable notoriety in our own country about three years ago, the information we are about to give respecting it (condensed from our cotemporary) will be of interest to our farmers.

This plant was introduced into England some years ago, with the avowed object of supplying the place of the potato, and at a time when the extinction of the latter appeared very probable. The *discorea batatas* belongs to an order of plants quite distinct from the potato. The method of cultivation adopted for it, at the garden of the Royal Agricultural College, was by deep digging first; then the ground was laid out in high ridges, and treated with the best barn-yard manure. From one cutting planted in the deeply-cultivated and highly-fertilized soil, one poor yam was grown, which was one foot eight inches long, four inches thick at the greatest girt, and it weighed only eight ounces; it was mostly all spindle. The following are the conclusions of Professor Buckman in regard to its cultivation:—"1st. The deep digging is necessitated for a plant which has a direct downward growth of from 18 inches to more than 2 feet; this, then, requires a deeper soil than is usually found to rest upon, at least, the calcareous rocks. The preparation for this crop, then, is more expensive than for any other, and as labo

of this kind cannot be done with the plow, this fact alone would militate against its taking the place of the potato in field cultivation. 2nd. This curiously deep growth involves immense labor in getting-up the crop, in our own experiments, certainly more than the result is worth. 3rd. The shortness of our summer for root heat—without which this plant makes but very slow progress—will ever prevent the potato yam from being successfully grown in this country, unless in a few favored spots. 4th. The peculiar growth of the bine or flexible stems, like its cognomen, the black briory, points to the necessity of some support, in order that the leaves or plant lung may be fully developed, without which little root can be expected. 5th. Under the ordinary circumstances of soil and climate of the British Isles, I cannot imagine that its yield will be sufficient, or its flavor so surpassing, as to entitle it to a much higher place than such old garden esculents as *schorzonera*, salsify; or especially the common artichoke, which, indeed, is not unlike the potato yam in this particular, but with a far greater power of fecundity, and much more easy of cultivation."

These remarks, then, point to the general conclusion that the potato yam can never be relied on, to greatly aid the common potato in supplying a vegetable food for the mass of the people; still less can it ever supply the place of, or supersede the widely-spread, easily-cultivated potato. —*Scientific American.*

Agriculture at Yale College.—To see Yale College stepping out from among the mists of antiquity and the graves of dead languages, and "taking up the shovel and the hoe," is certainly one of the signs of the times. She made her *debut* on this new stage on the 1st day of February, having secured the services of 25 leading agriculturists to sustain her in this first effort. These gentlemen are to take up all possible subjects connected with agriculture for the benefit of farmers and gardeners, young and old, and for their own material enlightenment. There are to be three lectures a day for the space of a month, each lecture to be followed by questions and a discussion. The list of names, in which we find Marshall P. Wilder, late president of the National Agricultural Society, Cassius M. Clay, of Kentucky, Lewis F. Allen, Esq., of New York, and other eminent men, beside Professors Silliman, Porter and Johnson, of Yale College, give the highest character to the undertaking. The advantages of this course are offered so cheaply ($10 for a course ticket) that it will draw together large numbers. The idea involved in this enterprise, namely, getting together educational capital by small contributions of knowledge from large numbers, is an important discovery. We do not see why it is not susceptible of very extensive and varied application.—*Scientific American.*

WHAT GOOD FARMING WILL YIELD.

To the Editor of the Thorold Gazette.

Fonthill, March 27, 1860.

Sir,—In order to fulfil the promise I made some time since to furnish you with a statement of the products of my small farm (25 acres,) for the year 1859, I now beg to forward you the following statement for publication in the columns of your valuable paper:—

24 tons of Hay at $8 per ton....	$192 00
158 bushels of Barley at 60c per bus	95 00
194 do Corn in the ear at 30c.	49 20
3 tons of well-cured Corn stalks.	15 00
150 bushels Carrots at 25c per bus	37 00
140 do Potatoes at 25c per bus	35 00
1 Beef Cow sold off the farm..	29 00
400 lbs of Butter from 3 cows at 12½ cents per lb.....	50 00
450 lbs Pork fattened at $5 per cwt.	22 50
100 Poultry, the produce of.....	25 00
Fruit from garden.....	22 00
	$575 20
Product of garden not included above.	
The expense attending the working of my farm were.....	200 00
Leaving a nett profit of	$375 20

My object in furnishing the above statement for publication is—at the request of many of my most valued friends engaged in agricultural pursuits,—to show the amount of produce that can, by proper tillage, be grown on a small piece of land. Farmers, as a general thing, are complaining that owing to the failure of the wheat crop, caused by the ravages of the midge, their occupation, in the estimation of many of them, is nearly gone. In this I beg to differ with them, though I admit the wheat crop has been considered the staple product of this country, and for the past two or three years has failed to a certain extent. Yet I am not willing, from my own experience in farming, to attribute the failure, as many do, solely to the ravages of the

midge. There are other causes to which may be attributed the failure of wheat culture, which causes I have frequently observed in travelling through our own country. For instance, improper tillage of the land, and a neglect in the opening of proper ditches and drains in order to take away the surface water, which, by being allowed to remain until it dries up by the heat of the sun or is absorbed by the soil, in either case materially injures the land and renders it unproductive. I really hope that all our farmers (for they are the bone and sinew of our country) will shake off that lethargy under which they seem to be laboring, and try such experiments as are recommended through the various agricultural periodical of the day, and my word for it, from my own experience, many of them who now appear to be in a state of despondency, will in a short time find out the advantages arising from the suggestions made from time to time through these papers, and that farming will soon assume a much more healthy aspect, and the apathy which at present prevails will disappear as the mists before the morning sun.

Mr. Editor, although only engaged in a very limited way in farming, I shall be most happy at all times to communicate my experience through the columns of a newspaper, or in any other way that will prove most advantageous to all concerned in these laudable pursuits.

I am sir, your ob't servant,

ROBERT HOBSON.

APPLYING MANURE TO CORN.—A correspondent of the *New England Farmer*, who uses manure from a barn cellar, without any admixture of straw, thus gives his method of applying it to sward land for corn. He spreads it in spring upon the ground plowed the previous fall, at the rate of fifteen to eighteen cords per acre, and then gives it a thorough harrowing, so as to mix it with the surface soil. Then, just before planting, he plows the ground to a depth of from three to five inches, harrows it and plants the corn. In this way he has raised on an average from sixty to seventy bushels of corn per acre.

HEN MANURE.—In answer to an inquiry, it may be said that a good use of hen manure is to compost it with muck two or three weeks before it is wanted. In the proportions of three parts of muck to one of manure it is excellent to give Indian cord a start by putting it in the hill at planting time. Do not put ashes or lime with it, as they tend to liberate the ammonia. Plaster will not fix the ammonia unless it is in solution, and it requires about seven hundred times its weight in water to dissolve it. In a dry state, plaster will liberate ammonia, according to experiments of Mr. Pusey and others, which have been published.—*Boston Cultivator.*

WOOD ASHES FROM AIR-TIGHT STOVES.—From the peculiar construction of these stoves, the ashes are continually being reduced in bulk, the lighter portion being carried by the draft into the chimney, together with all the volatile matter, and thus the less volatile portions, composed chiefly of potash, are aggregated in the ashes left in the stove. Indeed, most of the air-tight stoves do not necessarily call for the removal of any ashes during the whole season, at the end of which, the ashes is nearly pure potash. We believe that ashes from such stoves are frequently worth a dollar a bushel for agricultural purposes. It should not be carried directly to the land, however, but should find its way there through the compost heap, and if this mass of manure is supplied with a drainage cistern, the lye continually being formed is so fully charged with potash, that when pumped back on the heap it has the power of decomposing the woody fibre, and developing most perfectly all the inorganic materials of value it contains; even the silex is rendered soluble by the presence of potash. Such ashes should never be sold, but should always be used by the farmer.

The amount of phosphates found in many ashes is very great. Thus hemlock spruce contains nearly 17 per cent. of phosphate of lime, and nearly 10 per cent. of phosphate of magnesia. American chestnut 17 per cent. of phosphate of lime, and white elm $14\frac{1}{2}$ per cent. of phosphate of lime and magnesia; white hickory $11\frac{1}{2}$. Black birch contains $16\frac{1}{2}$ per cent. of phosphate of lime. Black cherry 13 per cent., and red beech over 17 per cent. Thus it will readily be perceived, that these ashes have a high value. Prof. Emmons claims, that of the phosphates, of per oxyd of iron, of lime, and of magnesia, the American white oak, in its ash, yields as follows: the sap-wood, $32\frac{1}{4}$ per cent., the heart-wood $13\frac{1}{3}$, the twigs 23 6-10, the bark 10 per cent., and the bark of the twigs 23 per cent.—*Working Farmer.*

ASHES OF ANTHRACITE COAL.—We are often asked if the ashes of Anthracite coal have any value as manure, and have as frequently answered that their greatest

value consisted in their ability to prevent the adhesiveness of clay soils, for eighty-eight per cent. of these ashes is entirely insoluble in the strongest acids, and consequently not capable of furnishing food even to the lowest class of plants; the soluble silica is immaterial in amount, the alumina, which varies from three to four per cent., cannot be of any value; the iron which varies from four to six per cent. is of no value, as most soils contain all that is required. The lime in the ashes of the white ash coal, is about two per cent.; in that of the red ash, but sixteen-hundredths of one per cent.; the magnesia is not called for, while the soda is but one-fifth of one per cent., and the potash even of less quantity; indeed, we believe this to arise from the wood used in kindling the fires, rather than from the coal itself. The greatest value of coal ashes is in the phosphoric acid, being the fifth of one per cent., and of the sulphuric acid, which varies from a half to to three-fourths of one per cent.; beyond these the ashes have no value, and the phosphoric and sulphuric acids contained in a ton is not worth ten cents. Therefore, coal ashes, except when required as a divisor for very tight clay soils, cannot be worth the cartage. In addition to the small quantity of inorganic matter capable of being used by plants, it is proper to state that it is not in a very progressed form, and, therefore, still smaller proportions than those noted can be appropriated by the higher class of plants.—*Working Farmer.*

Ayrshires as Milkers.—The *Springfield Republican* says Mr. Birnie, of Hampden, Mass., keeps a large herd of Shorthorn and Ayrshire cows, and gives a decided preference to the latter as milkers. In proportion to the food they eat, he says no breed can surpass them in yield of milk. He has one Ayrshire cow weighing about 800 lbs., that has averaged more than her weight per month in milk since April last, and a two-year-old heifer, the daughter of the above cow, that is now in milk, and gives 20 lbs. per day,—*Genessee Farmer.*

Origin of Plants.—Should the following record interest our readers as it has us, it will fully repay the space it occupies in our columns.—*Porter's Spirit.*

Madder came from the East.
Celery originated in Germany.
The chestnut came from Italy.
The onion originated in Egypt.
Tobacco is a native of Virginia.
The nettle is a native of Europe.
The citron is a native of Greece.
The pine is a native of America.
The poppy originated in the East.
Oats originated in North Africa.
Rye came originally from Siberia.
Parsley was first known in Sardinia.
The pear and apple are from Europe.
Spinach was first cultivated in Arabia.
The Sunflower was brought from Peru.
The mulberry tree originated in Persia.
The gourd is probably an eastern plant.
The walnut and peach came from Persia.
The horse-chestnut is a native of Thibet.
The cucumber came from the East Indies.
The quince came from the Island of Crete.
The radish is a native of China and Japan.

Peas are supposed to be of Egyptian origin.

The garden beans came from the East Indies.

The garden cress is from Egypt and the East.

Horseradish came from the South of Europe.

The Zealand flax shows its origin by its name.

The coriander grows wild near the Mediterranean.

The dyer's weed is peculiar to Southern Germany.

The Jerusalem artichoke is a Brazilian product.

Hemp is a native of Persia and the East Indies.

The cranberry is a native of Europe and America.

The parsnip is supposed to be a native of Arabia.

The potato is a well-known native of Peru and Mexico.

The currant and gooseberry came from Southern Europe.

Rape seed and cabbage grow wild in Sicily and Naples.

Buchwheat came originally from Siberia and Tartary.

Barley was found in the mountains of Himalaya.

Millet was first known in India and Abyssinia.

Origin of the Berkshire Hog.—Benjamin F. Johnson of West Urbana, Illinois, in the Illinois *Farmer* gives the following sketch of the origin of the Berkshire swine:

"The Berkshire is a native of the South Sea Islands, where the population instead of pressing on the means of subsistence, the means of subsistence presses on the population. Vegetation is so luxuriantly vigorous and fruits and vegetables so extraordinarily abundant, says an authority: 'The South Sea Islands on their discovery, by Europeans, were found to be well stocked

with a small, short legged, black hog, and the traditionary belief of the human natives bore, that they were as anciently descended as themselves. The hog in fact, in these Islands, is the principal quadruped, and is, of all others the most carefully cultivated. The fruit of the bread fruit tree, either in the form of a sour paste or in its natural condition constitutes its favorite food, and its additional choice of yams, eddoes, and other nutritive vegetables, renders its flesh most juicy and delicious; its fat though rich, being at the same time, not less delicate and agreeable than the finest butter." In these Islands, besides the hog, the only indigenous quadrupeds were the rat and a small dog. Therefore being the largest and strongest animal, and having no occasion for defensive operation, the hog of the Islands of the South Seas, has lost his tusks to a great extent, and under the most favorable circumstances for the development of his nature, he has become the small-boned, short-legged, round bodied, thrifty, hardy, prolific creature we find him. No other breed seems to have the vital force of this, and no animal more uniformly, certainly, and distinctly, marks his offspring than the Berkshire. He is among hogs, what the Devon is among breeds of cattle. He has the strongest original constitution.

EUROPEAN AGRICULTURAL EXHIBITIONS.

The great French National Agricultural Exhibition will be held this year in Paris, June 17th to 23rd.

The Royal Agricultural Society of England, at Canterbury, July 9th to 12th.

The Royal Agricultural Improvement Society of Ireland, at Cork, July 25th to 27th.

The Highland and Agricultural Society of Scotland, at Dumfries, August 1st to 3rd.

Our excellent cotemporary, the *Farmer's Gazette*, remarks in reference to the Irish Show, that to such of our American friends as may be desirous of procuring stock, Cork is very conveniently situated, Queenstown being now the point of departure and arrival of a weekly line of steamers to and from America." The Irish Exhibition is expected to be very large, and will well repay a visit. Canadians can now leave Quebec in their own line of steamers, and be landed at Queenston, close to Cork, in ten or twelve days.

JERUSALEM ARTICHOKES.—What are Jerusalem Artichokes good for? is a question which I hear asked very often; and I propose to tell the Ohio *Cultivator* folks why I raise them, and what I think they are good for. They are most excellent winter food for all kinds of stock, being worth nearly as much as potatoes, while they can be kept with little or no trouble, as freezing does not injure them, and they are not apt to rot. They are very productive, mine yielding from 800 to 1100 bushels per acre, while the cost of cultivating an acre is not more than the cost of raising half an acre of corn. They are good to plant in an orchard where the ground needs stirring deeper than it would be well to plow; as hogs will thoroughly stir up the ground without injury to the roots of the trees, and at the same time fatten on the artichokes. They do not exhaust the soil much, as their nourishment is mostly obtained from the air.—*E. E. Smith in Ohio Cultivator.*

Horticultural.

GARDEN MEMORANDA FOR MAY.

"'Tis sweet to throw yourself at noon
Loose on MAY flow'rs, and placidly repose,
Whilst twine o'erhead in many a fair festoon
The gadding woodbine and the sweet briar rose:
But sweeter far, as airy music flows
From Grove's orchestra above, around,
In the open sky to wake. He only knows
How laughs the sun, and on the grassy ground
What chequ'ring shadows lie, and what bright tints abound."

This is a busy month with the gardener, in which the principal crops of the year are sown. If the season be warm and the ground dry, several crops, such as early peas, parsnips, carrots, &c., may be sown in April; but it often happens in our climate that the soil is not sufficiently warm and dry for the reception of the seed of the staple crops of the kitchen garden till the beginning of May. And till the air and soil get into a suitable state to support vegetation, but little is practically gained by sowing earlier. The prudent gardener, however, will always endeavor to keep ahead of his work, in the way of preparation, &c., and seize every favorable opportunity for facilitating his operations. Cucumbers, squashes, tomatoes, egg plants, &c., do best and come earlier by being sown in a frame, with a moderate amount of heat, and when of sufficient size transferred to the open air. Plants of this kind in a hot bed should gradually be exposed to the air; for if suddenly taken from a state of artificial heat and protec-

tion, and exposed to the sudden chills and changes which often characterise this month, they will be apt to perish, or at least receive such a severe check, as to permanently injure them. This remark applies to flowers and all kinds of plants raised under glass. Cabbages, cauliflowers, &c., will make much better and hardier plants if transplanted thickly into beds after they are taken from the frames, previous to their being finally put out. This, however, involves an amount of trouble and expense which people generally are not willing to incur on a large scale; but in private gardens it is quite practicable, and would be found highly advantageous. Early potatoes, such as the ash leaf kidney, Junes, &c., should be planted the beginning of the month, if not done earlier, allowing sufficient room between the rows for hoeing up weeds and the free circulation of air. The healthy and early ripening of potatoes, will very much depend upon the mechanical condition of the soil, and their subsequent treatment.

Dwarf beans may be planted as soon as night frosts are not likely to recur; they should not be closer than two inches, and must not be buried too deep. In order to have peas ready for table throughout the season, they should be sown at regular intervals, say two weeks, in succession, commencing with the earlier varieties. There are several excellent kinds in common use, and others of an improved later description may be obtained of seedsmen. Harrison's Glory, Flaek's Victory, and the Champion of England are among well established sorts. As a general thing those that require short sticks are most approved; but where sticks of six or seven feet can be readily obtained, the General Wyndham and Leviathan and some others will be found to answer.

Early cabbage may be set out this month, as soon as the conditions of soil and air are suitable. The raising of Summer Cabbage in this climate is not unfrequently difficult and vexatious, arising from sudden changes of temperature, want of moisture, attacks of insects, &c. It is a good plan to fill up the hole made by the dibble with water, or diluted liquid manure, before putting in the plant, and to solicit a moist, cloudy day for the operation; otherwise the young, tender plants will require artificial shading, till they strike root. A little extra attention to such matters will often save the crop from being destroyed. Lettuce, Cape Brocoli, and autumn Cauliflower should now be sown; and every effort made as quickly as possible to get the principal crops into the ground, under the most favorable circumstances. Asparagus that has been manured and forked will soon be ready for use; care should be taken not to cut too close, especially young beds, but allow a few heads from the first to grow up, which will strengthen the plants for next year. In Canada, where early vegetables are in the ordinary way almost unattainable, Asparagus comes most opportunely, and is highly nutritious, and generally relished.

The flower garden will now require great attention, as much of its future beauty will depend upon the manner and time of doing the different kinds of work. In gardening it is an essential rule that the soil should not be meddled with till dry: and an occasional intermixture of *fresh soil* is highly beneficial, especially for flowers. Bedding plants may now be set out, taking care to water and press the earth against the roots, when they will be almost certain to strike. Avoid, however, sudden transition and exposure, and let the plants have plenty of air before they are removed into the open ground. Annuals form most indispensible materials for decorating a garden, and by exercising care in selecting and disposing of new varieties, in accordance with taste and convenience, a flower garden may assume to a certain extent, new and grace ful features every year. In this respect, ladies can excercise their taste to great advantage. In sowing small seeds, take great care not to cover them too deep, which is a principal cause why so many perish. A light fine surface, with the seed just covered, are all that is required. In dry weather, give each other day a slight watering through a fine rose water pot; taking care not to apply cold well water to any kinds of plants.

Deciduous trees should have been mostly planted last month; but with extra care they may succeed now. If the weather be dry, water and mulch the roots. In this latitude, from the end of April to near the middle of May, is upon the whole the best time for planting Evergreens, when they are beginning to push their buds. The operation should be performed during a calm, cloudy day, and the warmer and moister the better. The chief cause of failure in planting Evergreens arises from the mutilation of their roots in taking them up and exposing them to a cold, dry atmosphere; an hour of such expcsure will sometimes prevent their growing at all. Evergreens cannot be safely transplanted a distance without having their roots well secured and moistened; conditions indeed

indispensible with the generality of fruit and deciduous trees. People are too apt to attribute their want of success in raising flowers and garden crops and planting trees to badness of seed or unhealthy plants, rather than to their own want of skill and attention to the essential conditions imposed by Nature. J. F.

STRAWBERRY CULTURE.

From the Port Hope Guide.

There is no reason, why any person who owns a garden or even a door yard, should not be abundantly supplied with this fruit every year. From a plot of ground seventeen feet square, it is said that more than two bushels have been gathered in a single season, which is a great deal more than most families require for their own consumption. But this can only be accomplished, by selecting the very best varieties, and adopting the most thorough system of cultivation. They will grow upon almost any soil, although a moderately rich gravelly loam is considered the most favorable. The ground should be dug or trenched, to the depth of two or three feet,—the deeper the better,—and the snbsoil should be enriched, by a liberal application of black earth, or *swamp muck*, with a moderate dressing of leached ashes, slacked lime and old tan bark. The best mode of preparing a plot of ground for the purpose, is to commence by digging up the surface soil, to the depth of a foot or more, across one side of the intended bed, and carrying it by wheelbarrow to the opposite side of the plot, thus leaving or forming a trench four feet wide and exposing the subsoil. Then apply the muck, ashes, &c., to the trench, digging as deep as possible and mixing it thoroughly with a fork. Then take the surface soil from the adjoining four feet of the bed, and throw it back upon, and cover the trench. This will form a second trench which is to be treated as before, repeating the operation until the opposite side of the plot is reached, when the surface soil, removed from the first trench, will fill up the last. Then apply a dressing of lime, ashes, and muck, to the whole surface, working it well in with a fork, and pulverising the soil as thoroughly as possible. The bed is now ready to receive the plants. For early fruit, the land should face or slope towards the East or South; for late fruit, towards the West or North, although this will to some extent be influenced by the varieties selected.

The best season for transplanting is either in the Spring or the Fall,—from the middle of April to the middle of May, and from the 20th of August to the 20th of September. It is not prudent in this climate to plant them any later than the latter date. The beds should be kept clean and free from weeds of every description. Nothing but strawberries should be allowed to grow in strawberry beds. If the season should be dry they should be frequently and liberally watered. In fruiting season, the whole surface of the beds should be covered with cut straw, or newly mown grass, to keep the fruit clean and the ground moist; and in the Fall they should be covered with a mulching of straw, dead leaves, or light barn yard litter, to protect them from the severity of the frost, and from sudden changes in the weather, by which the vigor and fruitfulness of the plants would otherwise be injured.

The varieties that appear to be most in favor at present *for our climate*, and promise to succeed best with us, are ***Hovey's Seedling***, ***Hooker's New Seedling***, ***Wilson's Albany***, and ***Triomphe de Gand.*** They all produce exceedingly large and beautiful fruit. The Hooker, Wilson, and Triomphe are hermaphrodites, producing blossoms, perfect in themselves, and requiring no other fertilizer. The Hovey's seedling, which is of the pistillate variety, producing only female blossoms, requires the presence of a staminate or male variety, and for this purpose, that old standard fruit the ***Early Scarlet*** is generally preferred. There are at present, some hundreds of different varieties offered for sale, by the fruit-growers and gardeners in the States. Any person desirous of growing the fruit on an extensive scale, would of course select for experiment, a great many more than those I have enumerated. In fact it is advisable for every person who intends to cultivate them, to try several different kinds, and when he has discovered the variety best suited to his soil and location, to reject all others. It is constantly found that a variety that succeeds admirably in one soil or situation, fails entirely in another: The Wilson's Albany, which is now admitted to be generally the most productive, has been known to fail entirely in some situations, although every care and attention has been bestowed upon it.

In setting out the plants, they should be placed in rows two feet apart, and from one foot to eighteen inches apart in the rows. The roots should be allowed to take their original direction and position as nearly as possible, and not thrust to-

gether into a small hole, as is too often the case. The soil in which they are planted, should be pulverized as finely as possible. Until after fruiting is over; the runners should be kept back, which is best effected by pincing them off, and afterwards unless plants are required for forming new beds, the runners should be cut off frequently and not allowed to cover the ground. This promotes the growth of the plant, preserves its vigor, and improves its power of fruitfulness in the succeeding year. They will yield a sparse crop only, the first season after transplanting, but they will be in full bearing and productiveness the second year.

The most experienced and most extensive cultivators are agreed in the opinion, that the use of stable manure, as a fertilizer of the soil, is more injurious than beneficial in the culture of the strawberry. It tends to produce too great luxuriance of growth in the *plant*, causing it to throw out numerous runners, and thereby diminishing its fruitfulness. The object of deep cultivation is to enable the roots to penetrate the earth in quest of moisture without which the plant cannot thrive. Instances are given where the roots have been traced to a depth of four feet. It is also found that by deep cultivation the size of the fruit is greatly improved—in fact large fruit cannot be obtained without it, but of course when the soil is naturally of a great depth and of sufficient fertility the labour of trenching will be unnecessary. A chemical analysis of the berry has shown that it is composed principally of potash, lime and carbonic acid, these three elements furnishing about 70 per cent of the substance of the fruit. It is with the view of producing a supply of those essential elements, where they do not already exist in sufficient quantity in the soil, that the dressing of ashes, lime, &c., is recommended. If the surface soil is not considered rich enough in itself, its condition may be best improved by a compost of swamp muck, decayed leaves, saw dust and sods, ***but no animal manure should be used.*** In summing up his advice for the treatment of the plant, Mr. Peabody, an eminent horticulturist of Georgia, and the originator of the variety which bears his name, says: "Let the cultivators remember the four grand requisites for a profitable strawberry bed, viz: deep cultivation, vegetable manures, shade to the ground (the covering of straw or newly mown grass), and water, water, water."

AMATEUR.

Port Hope, 16th April, 1860.

Scientific.

"HORSE-POWER" AS A MEASURE OF FORCE—The phrase or term "horse-power" is continually occurring whenever there is occasion to speak or write of the force of steam-engines. It is met with almost daily in the reading of newspapers, and of books or periodicals relating to science and art. Is there one reader in ten who understands what is meant by this term, or who attaches any accurate idea of the amount of power intended to this oft-recurring phraseology? We very much doubt it, and think, therefore, that a brief explanation of this term, gleaned from Encyclopedias and scientific works, may be both interesting and useful to the generality of ordinary readers. The term "horse-power," then, is used as the unit of force in the description of steam-engines. Instead of saying that an engine has a power of lifting or propelling so many pounds, it is said to be of so much "horse-power." The power exerted by a horse is taken to be equal to the pull or lift of 33,000 lbs., at the rate of one foot per minute, as this has been found to be about the mean of a good many observations and experiments. It has been found, for example, that a pair of horses will draw a plow along with an average pull of 300 lbs., as shown by a dynamometer like common spring steelyards, at an average rate of $2\frac{1}{2}$ miles per hour, or 220 ft. per minute. Now this is the same as if those 300 lbs. were pulled over a pulley, or lifted that height in that time; and 300 lbs. lifted 220 feet per minute, is just the same as 66,000 lbs. lifted one foot high per minute. The half of this performance of a pair of horses gives us 33,000 lbs. as the force of a single horse, and with this meaning it is used by engineers.—*Country Gentleman.*

Veterinary.

TREATMENT OF SPAVIN.—I have a horse that has a bone spavin. Is there any cure for it that you are aware of? I am advised by some to let it alone—by others to fire it, and do not know what course I better take. L.

Confirmed spavin is probably never radically cured. Firing and blistering are the old remedies, and sometimes produce apparent relief, but they are now discarded by careful practitioners. Dr. Dadd recommends rest during the inflammatory stage, and the application of cooling lotions to the parts. He uses a mixture of 4 ounces of muriatic acid, and six ounces of tincture

of bloodroot, in two quarts of water, and apply this daily by means of a sponge. Or, another remedy, equally good, is a mixture of 4 ounces of very strong vinegar, 2 ounces of proof spirit, and 3 ounces of common salt, dissolved in a quart of water. The following is his mode of application:

Take a piece of sponge, slightly concave, corresponding as near as possible to the form and size of the hock; by means of a few stitches, affix two pieces of tape or linen, so as to form an X; each piece must be long enough to encircle the joint two or three times; after dipping the sponge in the mixture, it must be applied to the inside of the hock, and there secured, and afterwards kept constantly moist. By a faithful application of the above the inflammatory symptoms (which are not confined to the joints alone, but prevail in the surrounding tissues) will soon subside, and anchylosis progresses in a slow, yet favorable manner, without the usual pain and irritation.—*Country Gentleman.*

Walking Horses.—A correspondent of the *Country Gentleman* suggests the offering of premiums at annual county fairs for fast walking as well as fast trotting horses. He says he knew a man who kept from two to four teams at work on the road, and never allowed them to trot at all; yet he made the distance in quicker time than his neighbors who made their horses trot at every convenient place. He said that when a horse walked after trotting, he walked much slower than his common gait, if kept continually on the walk, and thus lost more than he gained by the trotting.

Arts and Manufactures.

Home Manufactures.—We are glad to hear that a branch of manufacturing not before introduced into Canada, has been commenced in Niagara by our enterprising fellow-townsman, Charles Pierson, Esq., viz:—The construction of Ericsson's Caloric Engines. Wishing to see the working of this new motor (heated air instead of steam), we visited, a few day's since, the Niagara Foundry, where they are being manufactured, and witnessed one of these engines in operation. It is truly wonderful—here was an engine having a furnace about as large as an ordinary cooking stove, consuming scarcely a perceptible amount of fuel, working away with regularity and power, and even after the fuel was entirely consumed continuing to do its work for hours, or so long as the brick or iron composing the furnace, held in any degree the heat. The engine that we saw in operation is said to be about a four horse power.—*Niagara Mail.*

New Gun.—Colonel Colt has invented a revolving shot gun. It is said that upon a late trial of this valuable gun, at a distance of 30 yards, it put 175 pellets in a circle of 12 inches diameter, penetrating 75 sheets of ordinary brown paper, the shot used being No. 6 shot, $1\frac{1}{4}$ ounces and 2 drachms of powder to each charge. The gun is a five-shooter.—*New York Tribune.*

American Files cut by machinery at Ballard Vale, Mass., are coming into use among machinists, and are reported to be equal in quality to those made by hand.

Large Stick.—The Victoria County Agricultural Society, in their annual report, state that the largest stick of timber ever manufactured in the province has this winter been cut in Fenelon. It measured (Calper measurement) 815 square feet, and was manufactured by Geo. Kempt, Esq., of Lindsay, whose lumber last year commanded the highest price in the Quebec market.

Miscellaneous.

The Australian Shepherd's Life.—The demand for shepherds is necessarily continually on the increase, and as it is employment which commands a fair remuneration, it is rather eagerly sought. It has one peculiar advantage—that of being suited to almost any man of respectable character. The wages of this class of persons have risen considerably since the gold discoveries. There have been emigrants who aspired to be at once flockmasters instead of shepherds, with very little knowledge of what they were about to undertake. A "spirited" young gentleman a short time ago arrived at Sydney, with a large capital, and a desk full of introductions. At the end of a month of *fetes* and dissipation he bought 10,000 sheep, but when he had paid for them he found that he had forgotten to secure a run, and was obliged to re-sell them immediately, at an enormous sacrifice, to escape being utterly ruined. Many men of good education and refined tastes, who have no capital to lose, fascinated at first by the attractions of the gold-fields, but disappointed in their hopes, or unable to bear up against the exhausting toil, have taken to "the bush," and found competence and peace of mind as

veritable shepherds—the fevered life of a gold-digger being succeeded by the repose of the silent plains. Life in these vast solitudes has in it, for many, an inexpressible charm. The shepherd rises just before the sun, and after making a breakfast that would be a substantial dinner to an agricultural labourer, he follows the sheep all day, just keeping them in sight, letting them wander wherever they please, except into the thick scrub; at noon he directs them towards water, where they camp or lie still in the shade. As evening closes in he turns his flock homewards, and arrives at his hut just as the sun is sinking below the horizon. If he has a hutkeeper, or an assistant, his work is done for the day, and he may attend to the little garden which he has fenced in from the wilderness, or prepare the evening meal. If the dogs are good, no special attendance is required before midnight, when a watchman takes his seat in a box beside the sheep. We have heard of a young Oxford undergraduate, who, under the pressure of family difficulties, struck out his own path to independence, and now has the management of 3,000 sheep in one of the remotest stations of Australia. He kills and cooks his own mutton, saves nearly the whole of his salary, and lives in plenty and content. The love of literature, which he has carried with him from the university, cheers his days and nights, and an occasional newspaper, and the regular packet of letters from home, are read by the light of a tallow lamp with a zest that only a "gentle shepherd" in the Australian wilds can know. Many of the great grazier lords of Australia, the owners of seventy or a hundred square miles of pasture, and the proprietors of hundreds of horses, thousands of bullocks, and tens of thousands of sheep, lived formerly in a state almost as barbarous as civilised man could sink to—"Ancient Britons," as was once said of them, "in everything but paint." There are now many squatter families of superior education, who, emulous of the old country, have their orchards, plantations, and ornamental gardens, and are setting a good example to such of the shepherd lords as remain in their bachelor condition, and consequently retain many of those uncivilised habits which a long residence in the bush is too apt to engender.—*Quarterly Review.*

Successful Mode of Extirpating Rats.—A correspondent of the *North British Agriculturist*, after trying the various nostrums of vermin killers, and attempting to shoot the rats, found all unavailing, the vermin kept increasing in number and audacity. He observes:

"Such was my distress with rats in the spring of 1858, when, happening to pay one of my neighbouring farmers a visit, I mentioned how I was nearly overpowered with the vermin, when he recommended me to try cats; but having had always one or two about the house, I was led to think that the prodigious number of rats prevented their making any impression. But this was a mistake. My friend offered me a cat with two young ones, which I accepted, and sent for them next day. I made their crib in the granary, and got the carpenter to make circular holes in every door on the premises, sufficient to admit a cat; there was thus a free passage through the whole steading. I gave strict injunctions to the dairy-maid to feed the cats regularly and well; for I found that a cat, realising the feelings of a true sportsman, kills more for the pleasure of the chase than the luxurious enjoyment of the game. The result was, that in the beginning of 1859 my place was perfectly clear of rats. The cats having increased to seven or eight, that number I still keep up, and feeding them only at the steading, and for the last twelve months no rat has been seen.

Attachment between the Dog and the Cat.—The attachment of the dog and the cat is sometimes curiously manifested. In a large metropolitan household there had been a change of servants, and the new cook begged as a favour to be permitted the company of her dog. Permission was granted, and the dog took up his quarters in the kitchen, to the infinite disgust of the cat, who thought her dignity insulted by the introduction of a stranger into her own special domain. In process of time, however, she got over her dislike, and the two animals became fast friends. At last the cook left the family, and took away her dog with her. After an absence of some length, she determined on paying a visit to her former companions, her dog accompanying her as usual. Pussy was in the room when the dog entered, and flew forward to greet him. She then ran out of the room, and shortly returned, bearing in her mouth her own dinner. This she laid before her old friend, and actually stood beside him while he ate the food with which she so hospitably entertained him. This anecdote was related to me by the owner of the cat.—*Routledge's Illustrated Natural History, by the Rev. J. G. Wood.*

American Story of a Bear.—It is very seldom that a bear is met with in the woods, for his activity is chiefly nocturnal; but a highly curious *rencontre* is said to have taken place one day in a part of the forest not very remote from this place, which I will give you, as illustrative of the manners, both human and ursine, of these parts. A planter had ridden out into the wood to look after some strayed cattle, carrying with him the redoubtable cow-whip, consisting of a handle three feet long, and a lash of twisted raw hide thirty feet long, which was coiled on his right arm. Suddenly a huge bear starts up before him, from behind the gnarled roots of an old tree. The man could not resist the impulse to give the animal a lash with his whip, but, to his surprise, the bear showed a disposition to fight. It was rather an awkward predicament; but the horse was intelligent and agile, and as the rider made him face the bear, he was able, by leaping nimbly to and fro, to evade the ferocious brute, stung to madness by the repeated blows of the terrific cow-whip. At length the bear acknowledged his master, and turned tail for flight; when a thought struck the planter that he might possibly drive him home, as he would a refractory bullock. He accordingly kept close behind the animal, driving him along one of the numerous cattle-paths that thrid the forests, admonishing him, by a severe cut with the whip whenever he attempted to leave the track, until at length the poor creature patiently went as he was driven. A distance of six miles was thus traversed by pursuer and pursued, till the planter came within hail of his own house, when his son came out with a rifle and shot the poor persecuted bear. *Letters from Alabama.*

The Origin of Cigars.—The cigar, though more delicately manufactured, is essentially the same as smoked by the red man when first visited by Columbus. We may here describe an Indian mode of tobacco-taking, not yet given in this volume, but which is evidently the origin of the cigar. It is told by Lionel Wafer, in his account of his "Travels in the Isthmus of Darien in 1699." He says that when the tobacco leaves are properly dried and cured, the natives "laying two or three leaves upon one another, they roll up all altogether sideways into a long roll, yet leaving a little hollow. Round this they roll other leaves one after another, in the same manner, but close and hard, till the roll is as big as one's wrist, and two or three feet in length. Their way of smoking when they are in company together is thus: A boy lights one end of a roll, and burns it to a coal, wetting the part next it to keep it from wasting too fast. The end so lighted he puts into his mouth, and blows the smoke through the whole length of the roll into the face of every one of the company or council, though there be two or three hundred of them. Then they, sitting in their usual posture upon forms, make with their hands held together, a kind of funnel round their mouths and noses; into this they receive the smoke as it is blown upon them, snuffing it up greedily and strongly, as long as ever they are able to hold their breath, and seeming to bless themselves, as it were, with the refreshment it gives them." Lieutenant Page, who commanded the American expedition to La Plata, speaks of the universal custom of smoking in Paraguay, and inviting visitors to join. The servants, as a matter of routine, bring in a "small brass vessel, containing a few coals of fire, and a plate of cigars. This last hospitality is offered in every house, however humble its pretensions in other respects; and all men, women, and children, delicate refined girls, ane young masters who would not with us bd promoted to the dignity of pantaloon—smoke with a gravity and *gusto* that is irresistibly ludicrous to a foreigner. My son sometimes accompanied me in these visits, and was always greatly embarrassed by the pressing offer of cigars. I made his excuse by saying, 'Smoking is a practice we consider injurious to children.' 'Si, Senor,' the Paraguayan would reply, "with all other tobacco, but not with that of Paraguay." With both sexes tobacco is a constant passion."—*Tobacco; its History and Associations.*

Removing Mildew from Clothes.—When clothes are rolled up in a damp state for a few days, they become spotted with mildew, consisting of minute *fungi*. These are very difficult to remove, and they injure both the texture and color of the clothes. The only effectual method known to us for removing such spots from linen is by steeping the latter in a weak liquor of chloride of lime. It is made by obtaining some chloride of lime from the druggist's (say one pound,) then stirring it into about four gallons of cold water. It is now allowed to settle for one hour and the clear liquor is ready for the clothes, which should be steeped in it for about two hours, then washed thoroughly in cold water, and exposed on the grass to the sun.

We have had several inquiries regarding the best method of removing mildew from clothes, and some perhaps of our lady

readers (of which we have quite a respectable number) may be able to give us a more efficient and simple method than the one we have described. Much fine linen is often laid aside from use on account of becoming mildewed and discolored. A renovating remedy for this evil would be a great favor to many persons.

SPRING.

No more of frost, no more of snow,
The streams have cast their chains and flow;
The soft winds genial, breathe like song
The tender leaves and flowers among.
The happy birds no longer mute,
Make music sweet as lovers' lute;
And love itself pours sweeter strains
'Mong blooming maids and loving swains.
A theme more joyous none can sing,
Than hail to thy sweet promise Spring.

To those who've journey'd many years,
Their joy may shine amid their tears;
The bygone springs have left a trace,
Left blanks, that nothing can efface.
The bright eyes quench'd, the warm hearts cold,
The shepherd left without his fold;
Departed, loving mate and young,
No wonder, if his lute's unstrung.
Yet, while that life is on the wing,
With joy he still doth hail the Spring.

It seems awakening youth to all,
Whatever storms their fate befall;
For nature bursts her seeming tomb,
All life and sunshine, joy and bloom.
The skies like early brightness shine,
Earth's tendrils blossoming entwine;
Birds chirp and trill on every tree,
What joyous, untaught minstrelsy.
What time has brought, what time may bring,
With joy we still must hail thee Spring.

Suppose like thee, we winter cast,
Leave freezing glances with the past;
The biting word, the act unkind,
The passions, wild as winter wind:
Forgiving injury with grace,
Good-nature levelling every trace;
And casting off pride's iron mask,
Forgiveness too of others ask.
If thou such genial feeling bring,
Oh! how we ought to bless thee Spring!

J. W. THIRLWALL.

Editorial Notices, &c.

EMIGRATION TO CANADA: Quebec, 1860.

This is the second edition of a very able and useful pamphlet, comprising a clear and strictly reliable outline of the geographical position, productions, climate, capabilities, educational and municipal institutions, fisheries, railroads, &c., of Canada. It has received the approval of the Bureau of Agriculture and Statistics, and was prepared under the direction of its able and indefatigable Secretary, William Hutton, Esq., and is designed "for extensive circulation in Great Britain and Ireland, and the continent of Europe, in the hope that Canada, as a distinct and important portion of North America, may thus become better known."

The extensive circulation of this excellent little production in the mother country cannot fail to be highly beneficial to this Province, and will be found of the greatest practical use to intending emigrants of all classes; some of whom have been disappointed after they arrived on our shores, from the exaggerated statements they had read in unauthorised publications. This work being prepared and published by the authority of a Governmental Department, will command public confidence, and afford a safe and useful guide to the intended settler; while it offers another proof of the substantial service rendered the country by those who superintend the various duties attached to our Bureau of Agriculture and Statistics.

CANADA, 1849 TO 1859: BY HON. A. T. GALT: Quebec, 1860.

The Hon. Inspector General has managed to compress within the compass of fifty pages of letter press a vast amount of information, including such an array of facts, clearly and succinctly arranged, as to convey a definite idea to a stranger of the astonishing progress which Canada has made during the last ten years. Mr. Galt scrupulously avoids treating his subject in a mere party and political point of view, and in the most enlarged and patriotic spirit exhibits by facts and reasonings that must be felt and understood by every intelligent reader, whether on this side the

Atlantic or the other, the certain and of late rapid progress which this Province has made in legislation, education, and the industrial arts of life. This little work, like the preceding, is just what is wanted to meet the exigencies of the times, and cannot fail to make a strong and favorable impression of what Canada is and will be.

Blackwood's Magazine for April, 1860.

We are in receipt, through Mr. Rowsell of this city, of the April number of this favorite Magazine. The leading articles are: Wellington's Career; Lady Hamilton; Our Position with China; Alison's History of Europe from 1815 to 1852; What we have done for the Princes of India; and Parliamentary Duelling. We have also part 4 of the Autobiography of Norman Sinclair; Poetic Aberrations, a review of "Poems before Congress" by Mrs. Browning; Stabat Mater, a Translation; and two or three clever short pieces in verse. Blackwood is reprinted by Leonard Scott & Co., New York, and may be had of Mr. Rowsell and booksellers throughout the country for $3 per annum; Blackwood and any one of the four British Reviews, $5; the four Reviews and Blackwood, $10.

New York State Fair of 1859.—The Report of this show which appears in the Transactions accompanying the present number, appeared in part in the Journal last autumn. It is now published officially as a portion of the volume of Transactions.

Seeds.—We are happy to be able to state for the information of our friends in the Eastern half of Upper Canada, that they can now be supplied with excellent Agricultural and Horticultural seeds, imported direct from the best London and Liverpool Houses, by Chandler & Co. of Belleville, C. W.

The Public Grant to Agricultural Societies.—In reply to numerous inquiries we repeat here what we have referred to in another column, that the sum named in the public estimates as the public grant to Agricultural Societies for the current year, and which will doubtless be voted by Parliament, is the full amount authorised by the Act 20 Vic., Cap. 32. Each County or Electoral Division Society, therefore, with its township branches, will receive three times the amount of their joint subscriptions, as shown in the affidavit transmitted to the Board of Agriculture, up to the maximum sum allowed by the Act. The Township Societies must deposit their subscriptions with the Treasurer of the County Society on or before the 1st day of May, and the Treasurer of the County Society should forward his affidavit to the Secretary of the Board of Agriculture at Toronto as soon as possible afterwards.

Market Intelligence.

TORONTO MARKETS.

Toronto, April 28, 1860.

The flour market continues buoyant, and a speculative inquiry has caused quite a number of sales. Among others, we hear of 1,000 bbls. of extra, of a favorite brand, selling at $6 f.o.b. We quote superfine at $4 95 a $5 05; fancy $5 40 a $5 50; extra $5 90 a $6; double extra $6 25 a $6 50.

Wheat in great demand, and rates somewhat higher, owing to the favorable news by the steamer. The receipts were about 1,500 bushels, and of very good quality. The price paid for the best lots were $1 50 a $1 53, and very little really good shipping wheat was got below the inside figure, which, taking the whole deliveries into account, was about the average price for the day. Common and ordinary lots $1 43 a $1 48.

Spring Wheat in active demand at $1 10 a $1 15—the latter in one case only.

Barley 65c a 66c.

Rye 70c a 75c.

Oats 35c a 37½c.

Peas 58c a 62c.

Butter—Fresh 18c a 20c; tub 10c a 12c.

NEW YORK MARKETS.

New York, April 28, 1860.

Flour—Receipts 10,887 barrels. The market is 5c a 10c better; sales are 8,000

bbls at $5 45 for superfine State; $5 55 a $5 65 for extra State; $5 45 for superfine Western; $5 60 a $6 for common to medium extra Western; $6 20 a $6 30 for inferior to good shipping brands extra round hoop Ohio. Canadian flour a shade better; sales 70 barrels at $5 80 a $7 50 for extra. Rye flour is steady at $3 50 a $4 25.

Grain—Wheat—Receipts 1,185 bushels; the market is nominally 1c a 2c better, but the demand is almost entirely checked by the advance asked; sales 20,000 bushels at $1 18 a $1 30 for Chicago spring. Rye quiet at 84c. Barley unchanged. Receipts of corn are 9,420 bushels; the market nominal, and 1c a 2c better; sales are 12,000 bushels at 84c a 86c for white Southern; 82c a 87½c for yellow do, and nominally 80c for mixed Western.

Provisions—Pork dull and unchanged; sales 525 barrels at $17 50 for old mess; $17 81 for new mess; $17 87 for old prime, and $14 25 for new ditto. Beef quiet and unchanged. Lard steady; sales are 800 barrels at 10¾c a 11⅛c.

Advertisements.

QUEEN'S SEEDSMEN.

PETER LAWSON & SON.

Edinburgh, 1 George IV. Bridge.
London, 27 Great George Street, Westminster, S. W.

ON ACCOUNT OF THE NUMEROUS applications which have been made to PETER LAWSON & SON, to send their Lists of Seeds and Nursery Produce to the United States and Canada, they beg to inform the Trade in America that they are prepared to furnish them with

PRICE LISTS

and to assure them that any orders they may be favored with will receive their best attention.

All orders must be accompanied by Cash, Satisfactory References in England, or may be forwarded through

CRAIG & NICOL,
No 6 Bowling Green, New York.

January, 1860.

PIGS FOR SALE.

FOR SALE, A LOT OF THOROUGH Bred Small Breed Berkshire Pigs.

R. L. DENISON.

Toronto, Feb. 14, 1860.

SEEDS! SEEDS! SEEDS!

TORONTO SEED STORE!

Corner of Front St. and West Market Place.

THE Subscriber in returning his sincere thanks for the partonage so liberally extended to him for the past four years, since commencing the business, would now beg to direct the attention of his friends and the public, to his large and well assorted stock of

FRESH GARDEN, FIELD AND FLOWER SEEDS,

All of which have been procured with his usual well-known care and practical knowledge from parties in Europe and America, personally known to him; he would therefore venture to say that the quality of all his Seeds cannot be surpassed in this Country or anywhere else.

FARMERS and GARDENERS would do well to examine before purchasing elsewhere, for it is their interest particularly to procure the best of seed to be had, and SPURIOUS SEEDS are often offered by unscrupulous parties under pretended inducements, which, if depended on, may prove fatal to crops, on which purchasers depended for a living.

☞ No seed issoldin his establishment without first being carefully tested.

Large supplies of all the leading varieties of the different kinds of seeds, most suitable to this climate, are constantly kept on hand.

Catalogues with full directions for sowing and raising vegetable and other seeds, may be had gratis, on application; and being a practical gardener of 19 years' experience, he will always feel happy to give all necessary information, personally, regarding the mode of cultivation, selection of varieties, &c., gratuitously to any of his customers.

For the convenience of those who wish to stock a small Garden with Vegetables and Flowers, but are unacquainted with the proper quantities for that purpose, he has collections ready put up.

Price of Collection of Garden Seeds, $2.
" " Flower Seeds, 1.

J. A. SIMMERS,
Seedsman,
Corner of Front St. and West Market Place.

Toronto, March 12, 1860. 6-t

Five Splendid Strawberries.

HOOKER–Very productive; large, beautiful, and of unequaled quality.

WILSON'S ALBANY,—Exceedingly productive; fine for market.

TRIOMPHE DE GAND—Immense size; splendid appearance, and *high flavor.*

PYRAMIDAL CHILIAN — Very handsome; productive, hardy, and *good flavor.*

LARGE EARLY SCARLET—The earliest; productive and *excellent.*

As it is impossible to secure all the excellencies of this most popular fruit *in one variety*, we offer the above as comprising, in five sorts, the various points desirable.

We again confidently RECOMMEND the HOOKER, as by far the best for family use, if only one sort is to be planted—combining a greater number of excellencies than any other variety.

☞ All of the above have perfect flowers, and will produce excellent crops, if planted singly or together.

☞ Order directly from the Nurseries, to be sure of the *genuine*—"The Hooker" originated on our grounds.

Money, at our risk.

PRICES—(Securely packed to be forwarded by express):

Per 100 plants of any of the above varieties,.....	$2.00
" 100 plants 20 of each variety,....	3.00
" 500 plants 100 of each variety,...	7.50
" 1000 plants of the Hooker.....	10.00

H. E. HOOKER & Co.
Commercial Nurseries,
March, 1860. *Rochester, N. Y.*

HUNGARIAN GRASS.

This valuable grass was introduced into this neighborhood three years since by our County Agricultural Society, and has given very great satisfaction to all who have tried it. Its ordinary yield is FOUR TONS TO THE ACRE, and in some cases SIX TONS have been cut. Cattle and all kinds of Stock are very fond of it, preferring it to Timothy. Its fattening qualities too are believed to be superior to those of any other known grass.

The Subscriber has obtained a quantity, and will send to any person making a post-paid application, sufficient to sow one-third of an acre for One Dollar, or One Bushel for Five Dollars.

All seed will be sent free of charge.

ARCHIBALD YOUNG,
Treasurer,
Lambton County Agr. Society

Sarnia, February 10, 1860.

SPRING FAIR.

TOWNSHIP OF GORE OF TORONTO AGRICULTURAL SOCIETY will hold their Spring Fair at CLAIREVILLE, on the Third Wednesday in April, 1860, and their Fall Fair at MALTON, on the Third Wednesday in October.

By order of the Board,
J. P. DELAHAYE,
President.
Gore of Toronto, March 19, 1860. 7-2t

AYRSHIRE CATTLE.

PATRICK R. WRIGHT, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young BULLS and HEIFERS for sale. His herd is well known as the best in Canada West, and his terms of sale are liberal.

☞ Full Pedigree of all animals—U. C. Stock Register.

April 2, 1860. 7-6m

YONGE STREET SEED STORE.

CHOICE VEGETABLE & FLOWER SEEDS FREE BY MAIL.

THIRTY SIX VARIETIES FOR TWO DOLLARS.

THE Subscriber, wishing to give parties who reside at a distance an apportunity to test the quality of his Seeds, will, on receipt of $2, free of postage, send free to any Post Office in Canada, 24 Full Sized Papers of VEGETABLE SEEDS, many of them containing half an ounce of seed, and 12 Papers of Choice FLOWER SEEDS, with Descriptive Catalogue and Box included—the seeds to be of my own selection. None but the most useful and desirable varieties will be sent.

JAMES FLEMING.
Seedsman to the
Agricultural Association of U. C.
TORONTO, Jan., 1860.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Advertisements—Five cents per line each insertion.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first six numbers of the current volume, the subscription price of the "Agriculturist" from 1st April to the end of the year, will be 37½ cents per copy; nine copies for three dollars.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, MAY 15, 1860. No. 10.

SPRING WORK ON THE FARM.

The weather is now very favorable for the progress of early sown spring crops; the recent welcome and copious rains have moistened the dry soil, and the temperature is such as to cause vegetation to advance rapidly. Oats, barley, peas, &c., are all mostly sown before this. There never was a finer spring than the present for getting along with all kinds of work, the ground having been since the breaking up of winter, in a sound, dry state. Till the recent showers, vegetation had made but little progress, and the pastures were remarkably bare. A great change has now taken place, and a good bite of grass will be ready for the cattle in the course of a few days, if the present favorable conditions of heat and moisture continue. Stock have got through the winter better than was anticipated at the commencement; the great falling off of hay last season in this section of the Province, has, to a great extent, been met by an increased amount of turnips, mangels, carrots, &c., raised last summer; and large quantities of hay have been brought from Lower Canada, where that crop was comparatively abundant. Winter wheat unfortunately has been much injured on old exposed land by the severe frosts that followed the departure of the snow; and in some situations we learn the destruction has been complete. Spring wheat has every where been increasing for the last few years, in consequence of the uncertainty attending the winter kind, and a very large breadth has been got in this season, under favorable circumstances. Indeed some farmers have deferred sowing the *Fife* variety until the present, (the middle of May) with a view of escaping the ravages of the midge. We knew of several instances last year of that kind of wheat being sowed, on suitable and well prepared land, as late as the 18th and 23rd of May, producing good crops, from 25 to 30 bushels an acre. As a general rule, however, the earlier sown will yield a larger and plumper grain.

The main crop of Potatoes should now be got in as soon as possible. The soil requires to be deeply tilled, and when the manure is applied broadcast, it should be finely divided, and well incorporated with the earth. Potatoes are this season unprecedently cheap, and a large amount must have been fed to cattle. There can be now no excuse for setting small and inferior tubers; select good sound seed of the ordinary size, so cut as to leave three, certainly

not less than two, eyes, indicating vigour; and if other conditions are favorable, they will at once commence a healthy growth, and yield a large return. Much will depend upon the after culture that potatoes receive. Cultivating between the rows by the horse-hoe, so as not only to keep down the weeds, but also to admit freely air and moisture to the roots, with carefully earthing up twice, at the proper times, are well known to be among the most important points in the management of this crop.

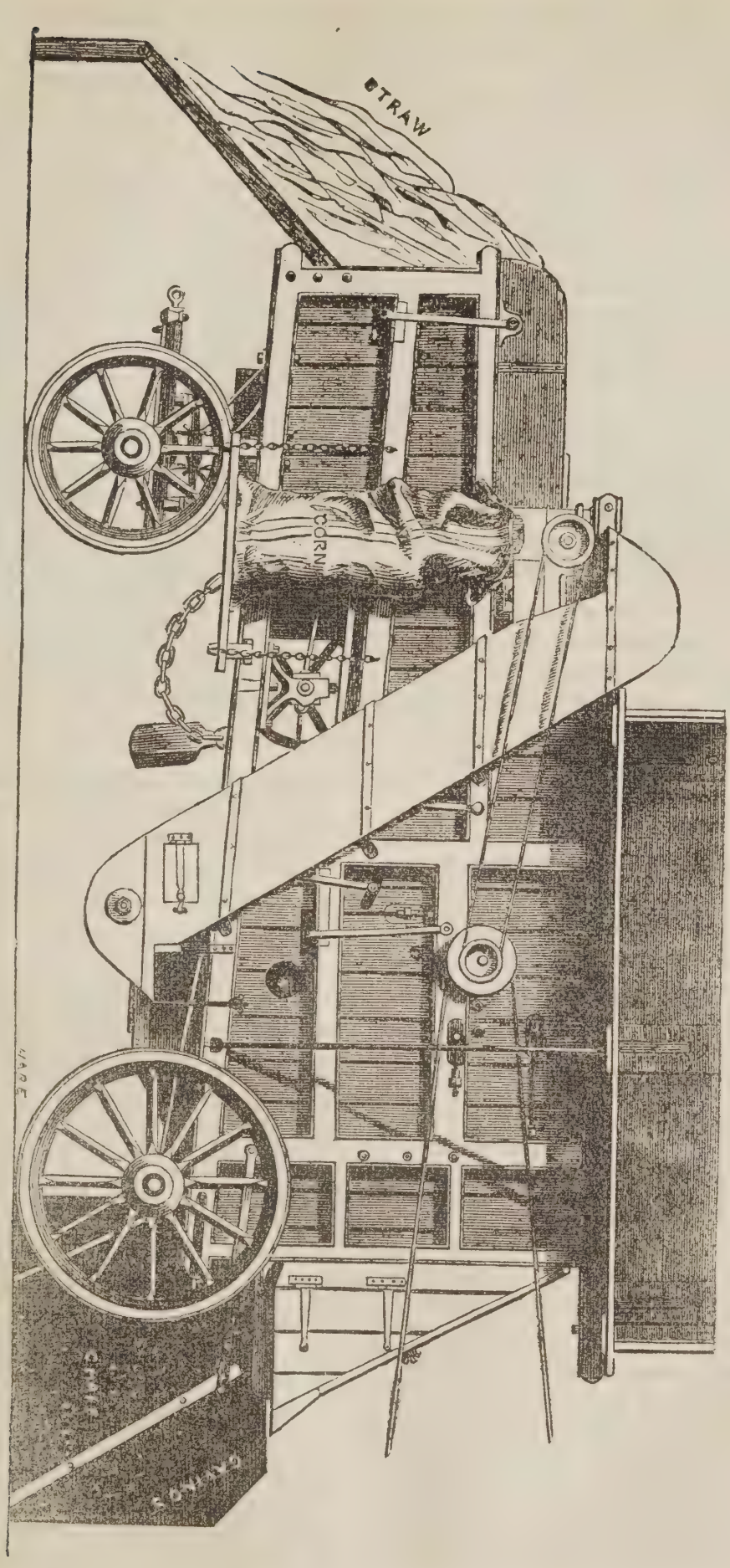
Every effort should now be made towards completing the preparation of land for mangel wurzel and swede turnips; two of the most important crops the farmer cultivates. The former should be sown without delay, if not already done; but the latter may be deferred to the end of the month or the beginning of next, according to the state of the ground and the character of the weather. If swedes are sown too early, especially on rich, moist land, they will be very liable to mildew, and the bulbs will become hard and woody, and consequently much less nutritious. September and October are the months in this climate, when swedish turnips, to be sound and nutritious, should uninterruptedly increase in size and weight.

Both these crops should be cultivated in drills; a practice that may now be considered an essential feature of improved husbandry. The distance between the rows should be varied to suit the strength of the soil, and the size of the variety cultivated. On good land, and proper preparation, mangels should not be nearer in the rows than two feet and a half; and three feet will often be found better. Turnips will require from two feet up to thirty inches; and plenty of room for both should be allowed the plants in the row to attain perfect maturity without crowding. While in this climate it is an advantage to get these crops to shade the ground by the end of July, great care is necessary that the plants be properly set out; as most people allow them to remain too close together, thereby diminishing the amount of produce.

The variety, perhaps, which produces the heaviest crop of Mangels is the long red, which is admirably adapted to deep and rich soils; upon such as are shallow the orange globe is more suitable. Of swedish turnips there are many varieties, but the Improved Purple top, introduced by Mr. Skirving, of Liverpool, may, perhaps, be considered as yielding the largest weight. This is a matter, however, that will vary in particular instances according to the nature of the soil, mode of manuring, and character of the season. Laing's Improved Turnip Top Swede produces very pretty bulbs, and better adapted, perhaps, than any other sort of Swedes for table use, but is not the most bulky grower, especially in late districts. No farmer can go wrong in attempting to grow any of the approved varieties of Swedes, the seed of which can now be readily procured of any respectable seedsman in our larger towns; and we would strongly recommend our readers to use every exertion this spring for procuring a good supply of roots, being persuaded that they will find them of the greatest value in carrying their stock through the succeeding winter.

THRASHING MACHINES.

It would be interesting and instructive to trace the origin and progressive development of machinery for the purposes of agriculture; and we should find in, perhaps, every instance, improved and efficient implements and machines to belong to the present century, more particularly to the latter part of it. Thrashing by machinery is a practice that has been introduced for a considerable number of years among the larger and more enterprising farmers, yet till within a comparatively recent period, the operation was performed in a rude and imperfect manner; the machines being frequently inefficient in working, requiring great force in order to keep them in



CLAYTON, SHUTTLEWORTH & Co.'s THRASHING MACHINE. (ENGLISH.)

proper motion, and too commonly leaving more or less grain in the straw unthrashed. As a general thing, however, the machine thrashed cleaner than the flail, and the amount of work done by each bore no kind of comparison. Within the last few years the substitution of steam for horse power in this operation was considered, and very properly so, a great stride in advancement; but now the farmer is not content with thrashing out his grain merely, he must have it dressed, sacked, weighed and thoroughly prepared for market, by one and the same operation. Hence mechanical skill has recently been prolific in so modifying the threshing mill as to render it capable of effecting these various purposes at the same time, impelled by the agency of steam.

The accompanying engraving represents one of CLAYTON, SHUTTLEWORTH & Co.'s Portable Thrashing and Single Blast Machines for finishing the grain for market. It has consequently combined, a single blast, bolting, straw shaking, riddling, barley horning, and winnowing machine, all which operations it performs with accuracy and dispatch.

This well known firm have been distinguished for their superior manufacture of the combined Thrashing Machine, of which they may be said to have been the inventors, inasmuch as they were the first who produced a combined machine that proved of any real or practical use to the farmer. Their straw shaker has undergone great improvement, as it not only shakes the straw much cleaner than any other kind yet brought out, but the improvement has also diminished the wear and consequent expense in repairs, so justly complained of in straw shakers generally. Their new and improved Drum Beater thrashes all kinds of grain, and, from its peculiar construction, renders it much less liable to split the grain than those of ordinary kinds. It also accomplishes what has from the first been the great desideratum in thrashing grain by steam power: thoroughly extracting the grain from the ear, whatever may be its condition, without splitting the kernel, thereby effecting a great saving.

The machine here engraved has one blower only, and is fitted with Barley Horner, (which can be used or otherwise at pleasure) and well constructed elevators for delivering the grain into sacks as thrashed, and makes four complete separations, viz: the corn, straw, chaff, and pulse or cavings, delivering each in the respective places assigned, and, in most cases, the grain requires only once passing through the ordinary dressing machine to render it fit for market. The price of this machine mounted on wood wheels, and the drum fitted with patent drum beaters, is £90 sterling. The illustration we gave in our last number of a portable steam engine manufactured by this firm is adapted to the working of the thrashing mill, and general agricultural purposes.

THE PROVINCIAL EXHIBITION.

The By-law for raising the money to build a Crystal Palace for the Exhibition has been confirmed by the citizens of Hamilton, the contract let, and the erection of the building, with the pens, fences, &c., energetically commenced, so as to be completed at an early day. The ground plan of the building has been extended from the original design, so that it will afford somewhat more floor space than the Toronto Exhibition Building, and will doubtless be sufficiently commodious for the purpose. There is now considerable probability of it being practicable to arrange for the exhibition to take place during the approaching visit of the Prince of Wales and suite, and in that case we had some reason to anticipate that the Government would be willing to afford additional aid, in the shape of a money grant, towards it, by which means the Board of Agriculture would be enabled so to extend the Prize List, or offer such other advantages to exhibiters as to make the occasion a more than usually imposing

display of the industrial products of this section of the Province. As there is still, however, some uncertainty in regard to these events, that is both as to the time of the Prince's visit, and the additional Government aid, the preparation of the Prize List for the Exhibition has been delayed till some more definite information should be obtained, so that the amounts of the premiums and the days for holding the show could be fixed to meet the circumstances. The Prize List therefore will not appear this season quite so early as usual—about the first of June, but as soon as possible afterwards. In any event the amount offered in prizes will not be less than it has been for the two years past, viz: the very handsome sum of nearly $12,000; and with this ample encouragement before them, farmers and mechanics cannot commence too early to take every pains in bringing the products of their skill to perfection, and doing all in their power to contribute to render the Upper Canada Provincial Exhibition of 1860 a worthy representation of the resources of the country.

WHEAT CULTURE AND DRAINAGE.

We find an article in the London (England) "Gardeners' Chronicle and Agricultural Gazette," for a copy of which we have to thank Mr. Hutton, Secretary of the Bureau of Agriculture, upon "The limit of Wheat Culture in Scotland," accompanied with a table, showing the mean temperature for the months of June, July, and August, during the years 1857, 1858, and 1859, with the height above the sea level, at places in Scotland within, on the borders of, and beyond the wheat region. The table shows that an elevation of two or three degrees of mean summer temperature is sufficient to constitute the difference between a region that will not produce wheat and one where it can be grown profitably. We need not insert the table, however, but the article itself has a practical value, as illustrating the effect of thorough drainage in elevating the temperature of the soil, and even of the climate itself. We have no lack of warmth in the air in any part of Upper Canada during the three summer months, for the maturing of wheat, the mean temperature ranging probably from 5 to 10 degress above the averages given in the table; but in many places, owing to an excess of moisture, it is late in the season before the *soil* has attained its proportionate degree of heat. Could we therefore, by draining, increase the heat of the soil in the months of April and May, so that spring crops could be safely sown early, and fall wheat commence to make root vigorously, so as to get quickly beyond the danger of heaving out by the night frosts, and come into ear too early for the operations of the midge, we should be greatly the gainers. The following is an abridgement of the article referred to; it is written by James Stark, M. D., F.R.S.E., &c.:

The object of all scientific investigations is to reduce them to some practical end; and as we know the influence which temperature exerts on the flowering of plants and in the ripening of their seeds, the extensive meteorological observations made in different parts of the country, if turned to their proper use, ought to throw much light on the subject. At present I purpose to offer a few remarks on the bearing of some of these observations on the limits of Wheat culture in Scotland.

In the cultivation of the cereal crops it is of little or no consequence what the temperature or severity of the weather may be during six months of the year, whether the ground during that period be bound up with hard frosts and covered with ice and snow, or whether it be saturated with rain and enjoy a moderate temperature rarely below the freezing point. Hence it happens that though many parts of the United States and all Canada have their soils bound up with hard frosts, ice, and snow for five or six months every year, as good or better Wheat is raised there as in Britain, where the winter is usually so open that the plough is rarely interrupted above a week or two continuously. For a country like Scotland, situated just on the very verge or limit of the Wheat region, it is of very great importance to ascertain what that degree of temperature is which will

render it profitable to cultivate Wheat, as it is a known fact that thorough drainage and improved shelter have so improved the climate of many districts that Wheat can now be regularly and profitably raised where a few years ago it would not ripen, or only do so in favourable seasons.

The table, which might have been greatly extended, shows some valuable facts relative to Wheat culture. It will be observed, from the observations made on the temperature of the soil, that in the best Wheat districts of Scotland the temperature of the soil itself 1 foot below the surface was, generally speaking, nearly one degree higher than the temperature of the air 4 feet above the surface. This is a fact most important to note, inasmuch as it shows that if the soil be in a thorough drained and porous state, as in the best Wheat districts, the heat absorbed from the sun's rays raises its mean temperature above that of the air over it, and also keeps the temperature of the soil much more uniform from year to year than that of the air, which last is of course more under the influence of all atmospheric agencies, as winds, rains, &c. These facts are especially notable during the year 1859. Thus though the mean temperature of the air during these three months was about $1\frac{1}{2}$ degree lower than during the previous year, the mean temperature of the soil itself was only about half a degree lower, and was in every instance from $1\frac{1}{2}$ to nearly 3 degrees of temperature higher than the mean temperature of the air over it. This greater heat of the soil must have compensated to a great extent for the lower temperature of the air during these months in 1859, and must have contributed powerfully to bring the crop of that year to early perfection.

The principal fact, however, which the table elicits is that in all the good Wheat districts of Scotland the mean temperature of the air during the months of June, July, and August amounted to, and exceeded 57° Fahr.; that in the districts which are on the borders of the Wheat region (that is, districts where Wheat may be, and often is, raised successfully, but cannot be trusted to as a regular crop, and is almost always of inferior quality,) the mean temperature of the air during these months ranges from 56° to 57°; while in all the districts where the mean temperature of the air during these months falls so low as 55° Fahr. Wheat cannot be raised as a crop. Speaking in a general way therefore the table seems to show that the limits of the Wheat region in Scotland may be defined to consist of a line drawn through all districts where the mean temperature of the air during the months of June, July, and August amounts to 56° Fahr.; all those districts where the mean temperature of these months is greater being within the Wheat region, and those where the temperature is lower beyond it.

Now some useful practical conclusions may be drawn from the facts just noticed. It is seen from the above table that nearly all the low-lying lands on the mainland of Scotland are within the Wheat region, those in the northern counties however being rather on the borders of that region than within it. It is next apparent that where the land is thorough drained and in good cultivation, the mean temperature of the soil during the Wheat months exceeds that of the air over it, so that the Wheat crop is brought to perfection even though the air temperature be from 1° to 3° below the average. This is a truly important fact for the agriculturist who is situated on lands bordering the Wheat region, for it indicates to him that if he can so improve his land as to cause it to absorb and retain a greater amount of heat, he may bring his land within the Wheat region, even though the temperature of the air rather indicates him to be beyond it.

All are aware that thorough drainage and shelter improve the climate, as it is termed; and numerous spots could be pointed out where Wheat now forms one of the staple crops, where formerly its growth was quite precarious, and it only ripened in favourable seasons. What has been done in one place may be done in nearly all the districts of Scotland where the ground is arable; for there are few level or gently undulating spots of good soil in Scotland under 600 or 700 feet of elevation above the sea in the southern and midland counties, gradually sinking to 200 feet in the northern counties, where Wheat may not be grown as a regular crop, provided the ground be thorough drained and sufficiently sheltered. Few seem to be aware of the effect of drainage in improving the temperature. So long as land is in an undrained and damp state much evaporation of water goes on from it, and the first and immediate effect of this evaporation is the production of cold, cold to the amount of from 1° to 3° Fahr. according to the dampness of the land. Any one may convince himself of this simple fact by looking at Mason's Hygrometer. This instrument consists simply of two ordinary thermometers, one of which has its bulb covered with muslin, which is kept con-

stantly wet, while the other is in its natural state and is dry. During the months of June, July, and August, the wet bulb thermometer indicates a temperature from 3° to 4° colder than the dry bulb thermometer; and this is just the difference of temperature between wet and dry land. Thorough drain and thus dry the wet land, and at once the land, from having a low temperature similar to the wet bulb thermometer, assumes a warmer temperature similar to that of the dry bulb thermometer; and the natural consequence is, that as it only required to gain 1° or 2° of additional temperature to bring it within the Wheat region; its additional dryness being attended with an increased temperature enables it to bring a crop of Wheat to perfection, which formerly it was unable to do. This then is the boon held out to proprietors and tenants to thorough drain their lands, and a few striking examples might be cited where good crops of Wheat have been raised on land naturally beyond the Wheat region, but which, from thorough draining and the nature of the soil, has the soil temperature so raised as to enable it to ripen Wheat perfectly. From the table above given it will be seen that Banchory is naturally beyond the Wheat region, and it is a fact that on the heavy damp clayey soils there Wheat cannot be raised as a regular crop. When mentioning the above facts, however, some time ago to Alexander Thomson, Esq., of Banchory, he mentioned that having thorough drained a field of black peaty soil and broken it up, he found that it produced an excellent crop of wheat; and theory shows that such was likely to be the case, inasmuch as the dark and porous and now dry peaty soil would absorb and retain a much larger amount of heat than the damp clays around, and thus furnish the degree of heat requisite to bring the crop to perfection. Several exactly similar instances in different parts of the country are known to me, one indeed in Lanarkshire, where on a similar drained and dark moorland almost peaty soil a crop of Wheat ripened at a height of 900 feet above the level of the sea, though in the district Wheat cannot be grown profitably even 400 feet lower.

From all this it is apparent that Wheat culture may be much and profitably extended in Scotland, but that the first step to take towards this consummation is to thorough drain the land. So long, however, as great tracts of undrained land exist, it is next to hopeless to expect even the drained farm in the immediate vicinity will raise as fine crops of Wheat as it otherwise would. The evaporation from the great extent of undrained land will lower the temperature of the air all around, and counteract to a considerable extent the higher temperature on the drained farm. In proportion however as the land around is drained, the general climate will so improve that Wheat crops will be enabled to be raised regularly; and the difference between the value of land capable of raising Wheat, and that only capable of raising Oats or Barley, is so great that it is worth every one's while to thorough drain his land, and thus bring it within the limits of the Wheat region. That Wheat was formerly raised in many localities in Scotland where it will not now ripen is well known, as the charters of several of the old families record the quantities of Wheat which certain lands were to pay over annually to monasteries and religious houses; whereas at the present day not a grain of Wheat is raised on the same properties.

It is no degeneration of climate which has led to this result, for the meteorological observations of the last century have proved beyond a doubt that the general climate of Britain is improving. But the result has been produced by the woods which gave shelter to the country having been cut down or otherwise destroyed, and to the land having been allowed to get into a marshy undrained condition; and as all the lands of Scotland a few hundred feet above the level of the sea are just on the borders of the Wheat region, the fall of mean temperature to the extent of either 1° or 2° Fahr. which would follow as a natural result of the land getting again damp, would throw it at once beyond the Wheat region.

Even the lands of Orkney, though naturally beyond the Wheat region, lie so closely upon it that the lowlying and more sheltered localities might, by proper drainage and cultivation, yield a considerable amount of Wheat. It is known that within the last 10 years Wheat culture has extended there, and this is evidently due to the improvement in the temperature of the soil produced by drainage alone, as trees cannot be reared for shelter. Here however the extreme limit of the possible Wheat region is so close on the sea level, that an elevation of 100 to 150 feet above the sea level raises it beyond the Wheat region, and destroys all prospect of a Wheat crop.

AMERICAN APPLES.

The following remarks of the *Gardeners' Chronicle*, (English) will be read with in-

terest on this side the Atlantic:

There is, perhaps, no quarter of the world where the apple is cultivated that produces such fine and perfect fruit as a portion of the United States. It is strange that such a very old inhabitant of the Old World should have been perfectly acclimatised in the New, and to have such a tendency to "make itself-good;" for, from our European sorts—many, doubtless of inferior quality when introduced about 200 years ago—have sprung members of the finest sorts of apples in the known world. The great peculiarity in American apples is their tender, juicy, delicate, half-melting flesh, rich, sugary, and most agreeable, without however, any decided aroma, at least, as far as I have tasted, like our Ribstone Pippin when grown in Kent or Sussex, and some other English varieties. These have, perhaps, more piquancy, but their flesh is hard and breaking, requiring, like the Cornish Gilliflower, iron teeth and a stomach of leather. American apples are, on the contrary, "old men's fruit," and a large Newton Pippin can be eaten with as much comfort as a melting pear. I can imagine no apple more agreeable than the Mother, the Northern Spy, the Melon, and the Reinette de Canada. The American kitchen apples are remarkable for their crisp, juicy flesh, neither too sweet nor too sour, but of the exact quality for pies and puddings. The Rhode Island Greening and the Baldwin are two excellent examples of this class of apples.

There is, also, a class of apples quite peculiar to the States, namely:—*Sweet apples* or pig-feeding apples. These have scarcely any trace of acid, even when grown in England, but are of a luscious, rather dull, sugary flavor. Pigs thrive upon them, and they are grown largely by farmers for autumn feeding. The Jersey Sweeting, Tolman Sweeting, Ramsdell's Sweeting and hundreds of seedling sweet apples are planted to "please the pigs."

But few of the American apples can be grown to advantage in England. Cobbett, when he imported his American Locust and apple trees, used to obtain some specimens to sell his trees by from trees trained to a south-west wall at Kensington, and most magnificent apples they were, quite enough to make his admirers American Appletree mad as they then were. This, however, is sufficient to remind us that American apples should be cultivated in a warm English climate like the neighbourhood of London, and be grown, either trained to walls or in some very warm situation. The peculiarity of the American climate in bringing apples to such high perfection, is very remarkable. The neighborhood of Rochester, in the western part of the State of New York, is a great fruit-growing district. * * Rochester is just about in the latitude of Toulouse, in France, the most favorable fruit-growing district in Europe. But how inferior are the apples of France to those of America; and yet the summer heat, of most seasons, at Toulouse, would not exceed that of Rochester. We can go further north in Europe and take Belgium and Holland—the latter, one would think, approaches to the American shores of Lake Ontario, in a moist and warm summer temperature. How dry and poor are nearly all their apples! America must, therefore, take rank as a first rate apple country. * *

There cannot, perhaps, be found in any other part of the world so trying a climate for the gardener and nurseryman as the United States, with the exception of the south. The severe winters often commencing in November and continuing till the end of March, the thermometer descending to 20° below zero, freezing the earth so deep as to heave up and destroy trees not well established, with the scorching heat and drought of summer, are enough to put the nurserymen and gardeners to their wit's end, and ought to make us "Britishers" well contented with our comparatively slow climate.

LUCERNE, ITS USES AND CULTURE.

[We take the following article from the *Valley Farmer*. The writer, Mr. Stevenson, of Missouri, has had a long experience in raising Lucerne, which it would be expedient to try in Canada. In Europe it is profitably raised on dry, calcareous soils, and makes excellent food for cattle either in a green state or as hay. It requires deep and perfectly clean cultivation, and will come to cut twice and sometimes more in one season.—Eds.]

"Lucerne is a native of France, from whence most of the seed is imported, and is called French clover. It thrives best in a deep, rich, rather sandy soil; but I have known heavy crops taken from soils of a different character, where the soil was sufficiently dry and rich. In fact, I have never seen a piece of ground too rich; as the

more luxuriant it grows the oftener it is ready to cut down. Its greatest value is for soiling, by cutting it as it is wanted for feeding green to horses, cattle or hogs. When fed to horses or cows, in the early part of spring, it is better to cut a few hours before feeding. Like clover it will produce hoven or swelling in cattle and colic in horses, if fed in a wet state. Too great caution cannot be preserved in feeding green clover or lucerne or other grasses to cattle in early spring, more especially when wet with dew or rain.

Every animal eats it with the greatest avidity; but I prefer it to all other grasses for soiling, because it never salivates the horse, and can be cut from the 29th of May to October, and is always healthy for hoses when judiciously fed. All other grasses, within my knowledge, will salivate the horse in wet seasons; but I have never known a single instance where lucerne has produced the same effect on the horse. When the milch cow leaves the pasture, a feed at night with lucerne is always relished, and richly pays for the little trouble of cutting and feeding as it is wanted. It is better to have the field or lot of lucerne, located near the barn or place of feeding. Boys twelve years old, ought to learn to cut or mow all grasses. It is best to provide a short strong scythe for common use, as the slender grass scythe is liable to be broken by inexperienced hands. A good bramble scythe, two feet or two and a half feet long, I always found the most serviceable. Make it a rule to keep the scythe sharp, and frequently wash the gum off the blade, which accumulates every day or two. The closer the lucerne is cut, not to injure the crown of the plant, and the sharper the scythe, the quicker will be the after-growth. When the lucerne is from twelve to fifteen inches high, it will do to commence feeding; and in five or six weeks where it was first cut, it will do to cut again; and if seasonable it will do to cut from three to five times during the season, according as the summer is warm and seasonable. When the supply is greater than the consumption, and the lucerne is full of blossoms, it ought all to be cut down and cured for hay like clover. It does not require so much spreading as clover, the stem and leaves being smaller than clover, do not contain so much moisture. One acre of lucerne will feed from four to six cows or horses, from May to October. I would advise every owner of a horse and cow, if he has but one acre of land, to put one eighth or one-fourth of an acre in lucerne. In the absence of flowers and shrubbery in the garden, I have known the borders and vacant spots to be filled with lucerne, so that the noble horse or the docile cow, could occasionally receive from the master's hand a delicious bite of that most valuable grass. Lucerne is as hardy as red clover, the seed resembles clover seed, but is nearly twice the size. It is a deep rooted perennial plant, the roots often penetrating the soil to the depth of two and three feet. It grows rapidly, sending up slender shoots from two to three feet in height, and bears a purple blossom, with the seed in spiral pods, several seeds in one pod. Under favorable circumstances it will stand from ten to fifteen years without re-seeding. It may become foul with weeds or grass, so as to retard its growth; in such a case, it is better to commence in time, and prepare another suitable piece of ground by heavy manuring and deep plowing, and cultivate some hoed crop where no weeds are permitted to ripen its seed. The preparing of the ground is, perhaps, the greatest trouble; but the benefits derived for several years afterwards, will richly remunerate the farmer for all of his extra labor.

In preparing the ground, my practice was to plow as deep as possible with a double horse plough, and follow with the small single horse plough in the same furrow, which would break the ground from twelve to fourteen inches deep. With a sub-soil plow a greater depth can be obtained; but I always succeeded with my manner of deepening the soil, and would recommend others to try the same plan, when the sub-soil plow cannot be had.

Lucerne is sometimes sown in drills from twelve to eighteen inches between rows. I would only advise this plan where the ground is foul and the lot small, as few farmers have the extra time to spare in hoeing the crop. It is much less trouble to prepare a piece of ground in the most thorough manner and sow broad cast. The quantity of seed per acre, is from sixteen to twenty pounds; I prefer the latter quantity as the lucrene is not so liable to be overrun with weeds where it is thick, and the stock is more tender. As before stated, the seed is mostly imported from France—will cost from thirty to thirty-three cents per pound by the quantity, and can be bought by the same quantity, for 40 to 50 cents per pound. It is always the surest plan to buy seed from some responsible seed store to insure fresh seed, as disappointments in getting good, fresh, clean seed, often discourage young beginners, and retard the introduction of valuable plants to the farming community. The time for

sowing the seed is about the first of May, or as soon thereafter as the season will admit. It has been recommended by some writers, to sow a small quantity of rye, from one fourth to one half bushel per acre. I have succeeded without any admixture of seeds of any kind. I once sowed half an acre in August, and succeeded in getting a good stand; in that case, I have no doubt the rye would have been a good protection, through the winter. I again repeat the declaration, that, I prefer lucerne to any other grass for feeding in a green state, or, as it is generally termed, soiling. It is not suited for grazing—and never having tested its qualities for making hay on a large scale, I cannot speak from my own observations; all that is necessary, is to keep stock of all kinds off of it, both winter and summer, and occasionally if it should require it, give it a dressing of fine rotten manure in the fall or winter—the manure made into compost through the summer and fall. Using the precaution to destroy all weeds and grass before going to seed will prevent the lucerne from being overrun with weeds. It is recommended by some writers to harrow lucerne in the spring; but if all stock is kept off, the ground is not liable to become packed, as the frosts of winter will lighten the soil, and the constant shade from the rapid growth of the lucerne will keep the ground shaded; consequently it is not liable to become close and hard, as when exposed to the sun and wind. The harrow can be used if the ground becomes packed and the field foul with grass or weeds.

THE CLERGY AND AGRICULTURE.

[There is much in the following article, copied from the *Homestead*, an excellent Connecticut paper, that is applicable to this Province, and that corroborates the observations of our correspondent "Clericus" in a previous number of this journal. In the British Islands the Clergy have been distinguished for their exertions in promoting the extension and improvement of agriculture and horticulture, as well as education, savings' banks, friendly societies, &c. The late Rev. Mr. Berry, in Leicestershire, was not only one of the most distinguished improvers of Shorthorn cattle, but a faithful and exemplary parish minister; and who has not heard of the celebrated Martin Doyle, in Ireland, a fictitious name for a good and zealous clergyman, whose numerous writings on rural and domestic subjects have proved a blessing to that country? The Scotch Clergy are well known for their enlightened zeal in forwarding these interests; the first reaping machine was invented by a minister of the Kirk, the Rev. Patrick Bell, and put into operation before it was thought of on this continent. The Monks of the middle ages were the great improvers of agriculture, as they were the conservators of learning. It would be a happy thing for Canada if every settled minister in the country was provided with a comfortable home and glebe, which would materially aid him in supporting his family, and afford him an opportunity of testing new varieties of plants for the farm or the garden, and of illustrating the principles and application of science generally in reference to rural pursuits. In this important work all denominations could readily co-operate.—
—Ed.];—

Every good cause looks very naturally to the clergy for sympathy, and for its most efficient helpers. In this commonwealth they have a well-established reputation for hearty labors in the promotion of all the temporal, as well as the spiritual interests of men. From the first settlement of the country, until the last generation, they were identified with the agricultural interests of the parishes in which they were settled. It was customary in the settlement of a minister, to put him not simply upon a salary, but upon a solid piece of territory, a sort of index on the part of the people of the solid character of the pastoral relation. They welcomed him to a parsonage and glebe, and expected him to identify himself with all the temporal interests of the parish, to cultivate the soil, and to get his bread in part by that primitive method, the sweat of his face.

Nothing is more common, in the settlement of our townships, than these grants of land, either directly to a minister, in his own right, or to the parish for his own use. This course was indicated probably by the necessities of a new country, where land was cheap and money dear, but it was as wise as it was ne-

cessary. It tended to make the pastoral relation permanent, and to draw forth the best efforts of the pastor in behalf of his people. He could feel at home among them, and lay his plans for the whole of life. It tended to make him a diligent student, for he had no expectation of moving to the next parish, to live upon the pulpit preparations of past years. Necessity was laid upon him to study and grow, mentally, to meet the wants of a people with whom he expected to die.

It tended to make him a diligent laborer in his fields, either in person, or in directing the labors of others, for he could expect to reap the harvests of the fields that he sowed, and to eat the fruits of the trees that he planted. He could gather around him the comforts of a permanent home in the country, and expect to enjoy it while he lived.

This policy of our fathers fostered a love of agricultural pursuits among the clergy, and some of the best farmers the state has ever produced, have been connected with this profession. Jared Elliot, of Killingworth, was a good type of the Connecticut clergyman of the last century. Says his biographer: "He published agricultural essays, and devised various ways for draining swamps in the interior, and also for reclaiming marshes from the sea. He was very industrious and methodical, and was particularly careful, that whatever he undertook should be well executed. It is difficult to conceive how one could be successful in such a variety of pursuits as those in which he was engaged; for he seldom failed in any undertaking. He possessed a very large estate in land, which consisted of farms in various sections of the State. These were generally better cultivated, and furnished more profits than those of his neighbours. Amid all his avocations, as a farmer and physician, he was distinguished for his piety and talents as a clergyman. So conscientious was he in the discharge of his duties as a Minister, that he always so contrived his journeys as to be with his people, if possible, on Sundays; and for forty successive years in the course of his ministry, he never omitted preaching either at home or abroad, on the Lord's day."

Owing to the insecurity of the pastoral relation and other causes, there has been a great change in the habits of the clergy in regard to agricultural pursuits. The parsonage lands in many of the towns have been sold, and invested in stocks paying larger dividends. The parsonage itself in many of the parishes, especially in villages and cities, has disappeared, and the pastoral relation has become a matter of convenience between the contracting parties. Ministers have been virtually thrown back into a sort of nomandic life, having about as little attachment to the soil of their parishes, as the Arabs of the desert. They form no strong attachments, and for slight causes they ask dismission of their own prompting, or to suit the caprice of the people. This instability of the pastoral office is by no means confined to the cities and villages. Rural parishes are quite as much infested with the love of change, and statistics will show even shorter pastorates.

It is not then altogether an irrelevant question that we propose to discuss, viz: What can ministers do to promote the interests of agriculture? The leading secular interest of three-fourths of our parishes is husbandry, and the temporal prosperity of these communities must wax, or wane, with the cultivation of the soil. For want of a better method of agriculture, many of these parishes have declined in wealth and population, very steadily from 1810 to 1850, and if the decline has been arrested, it has been within the last ten years. Many other parishes have remained about stationary, within the same forty years, while the increase of our wealth and population has been mainly confined to our cities and villages. The improvement of these rural parishes, their steady increase in population, wealth, the means of education, and of religious culture, depends mainly upon the improvement of their agriculture.

Clergymen in these parishes then, have a vital interest in agriculture, and may as legitimately labour to promote it, as to labour for the cause of education, or of temperance, or for anything else, outside of their profession. But it will be said perhaps, by some pastors, and by not a few of their hearers, that a minister ought to confine himself strictly to professional labours within the bounds of his own parish. It is undoubtedly true, that the details of parochial duty are enough to absorb the sympathies, and to occupy all the energies of the best men in the ministry. No parish is so small that it does not afford ample field for the display of the best talents in our churches. But religious sympathy is not a material thing, that it can be confined to the bounds of one parish. The charity which begins at home is least likely to end there. The pastor who finds more than enough to do at home, is the man, of all others, to put his hand to the work that needs doing abroad. It is not because our whole American population is

evangelized that the churches have embarked in the enterprise of foreign mission. Whatever may be the philosophy of this mode of operation, it is generally conceded that it works well, that the churches doing most for the mission field abroad, are most likely to be prospered themselves.

True benevolence is not a hoard of treasures, that can be exhausted by any limited draft upon its resources. It is rather a fountain of living waters, fed by a thousand hidden springs, and giving forth its crystal treasures in perpetual fulness. The man who sustains a colporteur in some destitute field of christian soil, is the man most likely to consider the wants of his own master, and to foster religion in his own neighbourhood. We cannot see that a rule of benevolence acted upon by the churches at large, and by private individuals, is denied to pastors. There is neither wisdom, nor justice, in that sentiment which builds a wall around one parish, and bids him think only and toil only for the religious wants of the people that give him bread. It is not wise; for a self-denying enterprise undertaken for the public good, will often bless his own parish far more than any work aiming directly at their own improvement. It is not just; for the compensation given for his toil is not so far an equivalent that they can appropriate their minister and say he shall do nothing for others.

Pastors, like other disciples, are to do good as they find opportunity, whether within or without parish limits, whether in the cure of souls, or in the cure of the bodies and their circumstances that the souls inhabit. Discreet ministers have a great influence over the secular affairs of their parishes. The strong hold which they have upon the people, as religious teachers and guides, give them great power in other things. They generally shape the interests of education and give much of their time and sympathies to schools and seminaries of learning. They ought, if it is necessary, to teach their people how to cultivate the soil, to be themselves patterns of good husbandry in the garden and in the field. Some of course are so situated in cities, or villages, that this cannot be done. But the large majority can own or hire land enough to illustrate the principles of improved husbandry. Their mental discipline and acquaintance with the natural sciences, fit them to understand scientific agriculture much more readily than the majority of their people who live by husbandry. They can show upon a few acres of land how every farm in the parish can add twenty-five, fifty, or one hundred per cent to its income. They can illustrate the advantages of thorough drainage, of deep tillage, of working muck mines, of saving manures, of raising improved stock, of cultivating fine varieties of fruits and vegetables.

We claim that the pastor may do this without detracting, in any case, from the value of his pulpit administrations, and in many cases the horticulture and farming will be found greatly to help the preaching and pastoral labor.

Most clergymen suffer both in physical and mental vigor, for lack of exercise in the open air. Many are habitually feeble, and lose days, weeks, or months, every year, from ill health. Those who have robust health, undisturbed digestion, and sound sleep seven nights in the week, and bring out their full tale of brick at the close of the year, are the rare exceptions. All men need to eat their bread in the sweat of their face, and must do it or do worse. Three or four hours of active exercise in the air and sunshine are none too much for physical health and the highest mental vigor. No sacredness of calling will save a man from the consequence of violating the laws of health. Dyspepsia, vertigo, and hypochondria, will attack a minister as soon as a layman, if he eat too much and work too little. Working with the hands was sound orthodoxy for a pastor in Paul's time, and neither human nature nor the operations of God's grace, have changed, that it should cease to be true doctrine in our time.

Those who preach, then, have either to take time to preserve health by out door employments, or to lose time for want of health, by their sedentary habits. No sane man can doubt which is the better for the profession, and for the cause of religion. Sermons full of the marrow of sound doctrine, and fragrant with the aroma of a healthful piety, need air and sunshine for their growth, as much as the clusters that purple the vine.

The labors of the garden and the field are as good for the mind as they are for the body. They were the employment of man in his innocence, and are appropriate to those who seek to retrieve the ruins of the fall. There is much in a daily intercourse with flowers, fruits and vegetables, to stimulate thought, and to make us wiser and better men. The clergy can do much as cultivators of the soil, being examples to the flock of all that is lovely and of good report, both within parish limits and at the fairs. They can also do much with

the pen, in communicating to the public the facts in horticulture and husbandry, that come under their own observation. No class in the commonwealth have so much power to improve our agriculture.

HORSE TAMING.

From the Ohio Cultivator.

John S. Rarey, having performed his wonderful feats of horse taming, in France, Russia and Sweden, has returned to England, where he seems to be as much of a lion as ever. One who witnessed a recent demonstration, writes the following for an English periodical, which, according to our observation, embodies the substance of all this school of horse taming so successfully practised both here and in Europe. It is an old saw, that a man may be a very clever fellow and yet not know how to make a hat. It is just so in handling horses; if the operator have not the true horse sense, he had best not meddle with edge tools. To what is said below, we will only preface the "how" to put on the strap for holding up the left foot: Take up the foot, hold the buckle of the strap (about 18 inches in length) in the left hand, lay the inside of the strap under the pastern, make one turn around the leg between the pastern and the hoof, carry the strap up the inside, over the fore arm of the leg, and bring it down to the buckle, buckle it fast, leaving a little play between the foot and the leg, and the horse is a prisoner. The rest is only a question of time and patience.—Ed:

The horse was standing in the midst of the arena, and watching, rather with the expression of curiosity than of fear and anger, the movements of the man as he strode up to his head very slowly, very gently, and ever with extended hand. At length, when Mr. Rarey was close upon him, he reached out his head, and smelt at his hand, his wrist, his sleeves. There was no precipitation. The object seemed to be to give the horse as much time as he might choose to take. The tamer's hand now caressed the horse's head and nostrils, smoothed it down, passed up to the forehead, and repeated the process. By this time, Mr. Rarey was standing by the horse's left shoulder, and had caught hold, with his other hand, of the end of his head-stall, or halter.

I have been informed that, at this stage of the operation, the horse will break away more than once; but this is obviously a mere question of time. This I did not see. Mr. Rarey now proceeded to pass his hand down the animal's side, just as any one of us might do to a horse which he was fondling or petting. This lasted some minutes, the horse evidently pleased to be relieved from his terrors, and appearing to enjoy the tamer's caress. At length Mr. Rarey began to stroke his fore legs, more especially the left fore leg. Here was the critical moment. In an incredibly-short space of time, Mr. Rarey got the strap out of his pocket, took up the horse's left fore leg, and slipped a loop over it, so that he could not get it down. There was nothing, however, abrupt or jerking about the way this was done; it was just as though he had been continuously stroking the leg; but the thing was done. This is the real instant of victory. From the moment the horse's leg is strapped up he is conquered. Plenty, however, remains to be told.

The horse stood quiet, and suffered himself to be caressed. Mr. Rarey stroked him over his back, his shoulders, his left side, and then began to make fresh appeals to his right leg. This took some minutes more. At length, he took a long strap out of his pocket, and fastened it by a buckle around the right fore leg, just above the hoof; he then carried the other end through the circingle, holding the end firmly in his right hand.

The next step was to take a short hold of the halter, and to pull with great strength, but slowly and continuously—not by a jerk—on both, but mainly, as it seemed to me, on the halter. The horse now took alarm again, but the upward spring which he gave, to relieve himself from restraint, of course lifted the right leg from the ground, and when he came down again, it was on both his knees. Mr. Rarey had fitted the horse with knee caps before he pulled him down. A considerable time—about ten minutes—elapsed from this period of the operation until the animal was fairly rolled over; and this was one of the most remarkable parts of the exhibition.

Throughout, let him struggle as he might, Mr. Rarey never quitted his left shoulder, nor relaxed his grasp on the strap. The horse reared up into the air, making frantic beatings with his hand-cuffed fore legs, but it was all in vain. Let him fight as he would, he was invariably brought down on his knees; and in this attitude he stood, panting, snorting, foaming, until at last the fierceness of his spirit seemed to give way, and he looked around him rather in a pitiable than a ferocious

way—as much as to say, "this is really to bad!" But whether he struggled, or whether he remained quiet, the even pressure was never taken off his left shoulder.—Before he yielded to it finally, he made one struggle more determined than all that had gone before; but with this his fury was spent. At length, he suffered himself to be lit erally tumbled over thoroughly tamed. I noti ced that, when he was fairly on his side, the poor creature gave a great sigh, which seemed to be one of relief, as though he had thought within himself, "Well! I've nothing to blame myself with; but that's well over at any rate."—When once upon his side, the horse was effectually tamed; he was as passive in the hands of his conqueror as one of the well-trained circus horses, which, at a given signal, fall upon the floor of the arena, and simulate death.

Whilst the animal lay in this condition, Mr. Rarey patted and stroked him over, or to use his own quaint phrase, "gentled," first one side, then the other—now this leg then that. From his expressions, you would have inferred that he had magnetized the whole of the horse's frame in detail, and that, had he neglected to make his passes over any particular section of the horse, that section would still have remained in a state of savagery. Thus you might have three tame legs, and a wild one. This, no doubt, implies an exaggeration. I only mean to convey an idea of the importance which the operator seemed to attach to familiarizing the animal with contact with the human hand over its whole frame. The straps which had confined his fore-legs were soon removed, but still the horse lay perfectly passive, and seemingly content with his situation. Mr. Rarey lay upon him, stepped over him, sat upon his head, took his fore-legs, rubbed them, and moved them backwards and forwards, as you would do if you had intended to restore checked or impeded circulation. The same process took place with the hind-legs—and here it was evident that volition and the power of independent muscular action was gone. The hind legs moved as they were pulled, and remained where they had been placed. Mr. Rarey lay down upon the ground, and, taking one of the horse's hind feet, placed the armed hoof on his forehead. Had there been but one momentary spasm of volition, or return of ferocity, the horse-tamer was a dead man. He was like a man tied to the mouth of a gun; nothing could have saved him, had the fire been applied to the charge.

This portion of the operation may have lasted about a quarter of an hour. Mr. Rarey then made the horse get up, which he did readily enough, but now every spark of his original ferocity seemed extinct. Saddle and bridle were brought in. They were first presented to the horse, and were carefully examined by him. The examination was conducted entirely by the sense of smell.

When the process of saddling, mounting, and dismounting, had been freely accomplished, a drum was brought in by one of the attendants. This, also, was presented to the horse, who carefully smelt it all over, and soon appeared satisfied that no harm was intended. The drum was passed over his head, neck, shoulders; his sides were rubbed with it; and, finally, it was placed upon his back, and softly tapped at first. The horse merely pricked up his ears. It was sounded louder and louder by degrees, until at last the most enthusiastic drummer would have been satisfied with the disturbance and clatter. This seemed to be the crucial test, and the animal was led out, meek and entirely subdued.

Correspondence.

CARRICK, April 27th, 1860.

MESSRS. EDITORS,—I am ashamed of being so late in the year without your valuable paper, but I have been waiting for our Secretary of the Township Agricultural Society to get up a large subscription list, which he has failed to do; therefore I enclose a dollar for a copy each for my neighbour and myself, and request that you will continue to send them until we order you to stop, and we will send the money, if not to the day, not far behind. I must not forget to thank you for the illustrated number of the Transactions. If you have not all the back numbers of this year, send what you have, and the rest as soon as you can reprint them.

We have had a fine time for ploughing, and the farmers of Bruce are making the best of it. There will be a great breadth of spring wheat sown in the county this year. I had 3½ acres of fall wheat last year, which, in spite of all the frost, went 22 bushels to the acre, and I have five acres this year which has stood the winter well, and bids fair for a good yield. I remain, a bushwhacker, and would be farmer.

RICHARD RIVERS.

[We insert the first part of the foregoing letter, principally for the sake of again

stating, in reply to it, for the information of subscribers generally, that it is our invariable practice to throw aside entirely our list of subscribers at the end of each year, commence a new book with the new year, and send no numbers of the new volume till ordered. To continue sending on the paper, as is the practice with the ordinary newspaper press, after the term of subscription had expired, would involve the making out accounts, and the outstanding of a large amount of arrearages, which, at the very low rate the *Agriculturist* is published, would be inadmissable. We may also observe for the information of our correspondent, that we could not possibly think of reprinting the back numbers of which we are deficient, unless orders for a large number of copies, say several thousands, should be received, which of course is not probable. The expense of resetting the type would be too heavy. We regret not having commenced the year with a larger edition, but we scarcely anticipated quite so extensive a circulation as we have obtained this year; we shall, however, be better prepared in future. We allude to this point elsewhere. We are glad to find that the prospects of the County of Bruce are so encouraging as stated by our correspondent in the latter part of his letter.—Eds.]

Agricultural Intelligence.

OATS—IMPORTED SEED.

Eds. Co. Gent.—Seeing recently in the Co. Gent., an enquiry whether the sowing of the heavier varieties of oats from England, was attended in this country with advantageous results, I will state that several years ago, another gentleman and myself imported from Liverpool a lot of the Potato oats, a very fine article, weighing 42 lbs. to the bushel—which we sowed. The resultant crop was also heavy, and a handsome sample; though I cannot state with certainty the weight, it was over 35 lbs., and I think it was 37. It continued to diminish in weight with each successive sowing for three years, till it reached my minimum standard for seed, twenty-nine pounds, when I again changed for the Black oats grown on Prince Edward's Island, whence I generally renew my seed trienially. This also is over forty pounds in weight when well cleaned, and the crop of last year from it weighed thirty-six pounds when cleaned for market, and yielded on thirteen acres, six hundred and fifty bushels, not lodging. Drill sown oats are found to stand better with us than hand sown and harrowed, and the difference is sometimes striking when side by side.

[Our experience very much accords with that of the correspondent of the *Country Gentleman*, as stated above. A few years since the Board of Agriculture of Upper Canada, imported from Aberdeen, in Scotland, several varieties of oats that are much esteemed in the British Islands. The seed of all the sorts was plump and heavy, weighing from 43 to 48 lbs. a bushel. They consisted of the Potato, Hopetoun, Angus, Berlin, Poland, and the Black and White Tartarian. The seed was sown by different persons on various soils, and the result was a gradual deterioration in quality year by year. These oats, however, were generally heavier than the ordinary varieties cultivated in this country for three or four years, when they seemed to have reached their minimum of weight. The mode of preparing the land, and the character of the season, of course affect considerably the quantity and quality of the grain. In Upper Canada our summers are generally too hot and dry for the oat. In the lower section of the Province this crop appears to do better; and in Nova Scotia and Prince Edward Island, owing to the greater moisture of their climate, arising from their contiguity to the ocean, oats yield a heavy grain in large quantities. For ordinary purposes we think that the Tartarian, White or Black, is the best suited to this section of the Province. It is hardy, and will more than make up in quantity what it may be deficient of in weight by the bushel. Seed oats ought to be frequently changed; getting them from different climates and soils as far away as possible. Like pigs, oats rapidly degenerate by sowing the same kind

on the same farm for a number of years. The only remedy lies in frequently changing the seed.—Eds-]

FILTRATION vs. EVAPORATION.

That evaporation is a slow and tedious process, is a fact of which the farmer who has undrained retentive soils, which he would plant or sow in good season, is often reminded, and the thought can scarcely fail to arise, that some quicker way of getting rid of the surplus water would be both convenient and agreable. If it can be shown that a certain remedy for this source of delay has been found, and can in most cases readily be put in operation at a slight expense compared with its beneficial results, surely none need longer suffer from this cause. That draining is such a remedy—that its application is profitable to the farmer—that in nearly every instance the expense is repaid by longer seasons and better crops, let us attempt briefly to prove.

Look at the retentive soil in spring-time, a stiff clay or hard-pan subsoil, for instance. The water then abundant on the surface and saturating the upper soil, must pass off either by drainage or evaporation. It cannot sink or filtrate away—the impervious subsoil prevents—it cannot drain off; the surface is too level and too retentive of water—hence it must remain stagnant until the warmth of the sun and passing currents of air affect its evaporation. And evaporation is not only a slow process, but a *cooling* one—the heat passing off with the vapour—and in proportion to the quantity of water thus passing, will be the loss of heat from the soil. On the same soil, when drained, filtration will dispose of a like quantity of water without any change of the temperature, save to increase that of the undersoil—equalizing it with that of the surface soil—in spring always warmer than the subsoil. It will dispose of it in a few hours—in a very short time after the frost leaves the ground in spring, or after a heavy shower. Filtration not provided for, the much longer time—weeks instead of hours—required for evaporation, shortens the season of preparation, or totally destroys the chance of a crop.

Could the water now making mortar of many an undrained clay, find an outlet or passage *through* the soil, the character of that soil would rapidly be changed. Who has not observed how soon heavy clays become friable when placed where the water freely flows from beneath them, or who can fail to see that a like result would follow the deep and thorough draining of even the heaviest soil. And the evils of stagnant water, or water waiting evaporation, can scarcely be overrated. As said above, it shortens the season of preparation for crops, and it also prevents the proper pulverization and culture of the soil; it causes wheat and other winter grains and the grasses, to heave out and winter kill, and fills lowland meadows with wild grasses and weeds, instead of wholesome herbage.

In ease and extended time of working, in the effect of manures applied, in the increase and certainty of productiveness, and in many other things which we might name, the difference between a porous or well drained clayey soil, as compared with an undrained and hence compact and retentive one, is almost marvelous. And this difference is simply "filtration *vs.* evaporation." In the one, the excess of water has free course through the soil, passing away by the drains without delay; in the other, it must wait the slow process of evaporation, a process leaving the soil more compact than before, and every way less fitted for producing any crop of value.

This difference in the soil "drained, or drowned," as it has been quaintly characterized, is not only observed in early spring, but in the heat and drouth of summer. A heavy soil becomes far dryer and harder from the effect of dry, hot weather than a light one. The porous soil takes up moisture from below, as well as absorbing it readily from the air. Thus a well drained and deeply plowed soil is little injured by drouth—its increased depth of mellow, friable earth gives greater extent to its power of supplying moisture to vegetable growth.—*Country Gentleman.*

FLAX.

We take the following remarks, upon a new system of gathering and manufacturing flax, from the *Boston Cultivator.*

We have several times alluded to the subject of flax culture in connection with the new mode of preparing it for the manufacture of fabrics. At one of the agricultural meetings at the State House, Mr. Stephen M. Allen presented a pamphlet comprising observations in regard to the cultivation of flax and its profits for the making of "fibrilia." As the subject is now attracting some attention, we condense from Mr. A.'s paper the following, which may be found to contain useful suggestions.

It is thought that a climate where neither severe drought nor excessive moisture prevails, is best for flax. The best soil is considered to be a deep loam with a clay subsoil, properly underdrained. Undrained clays, and light sandy or gravelly soils should be avoided. Flax should not be put on weedy land, as weeds check the growth and injure the fibre. It is thought best to plough the land in autumn. In the spring, plough again, and make the soil fine by harrowing and rolling. The seed should be plump and heavy, and should be perfectly clean from any other seed. About two bushels to the acre is a fair quantity, which should be sown as early as possible, and covered with a light seed harrow, passing twice over it in opposite directions. The earlier the seed is sown, the more slow and steady the growth, and the better the quality of the fibre. Weeds should be pulled from the growing crop when it is about three inches high.

The time for cutting is when the seeds begin to change their color from green to pale brown, and the stalk becomes yellow for two-thirds of its height from the ground and loses its leaves. If cut too early the fibre is flimsy, if too late, coarse. Cutting should only be done in dry weather.

The flax may be cut with the scythe or with the mowing machine, and cured in all respects as hay. It should be placed in the barn, or formed into stacks in the field as soon as dry enough, avoiding as far as possible, exposure to rain and dew. It may be thrashed by an ordinary thrashing machine, as the tangling of the straw is no injury to the fibre for making fibrilia; and when the seed has been thus removed, the straw may be broken on the farm by Randall's brake, which needs less power than a thrashing machine; or the straw may be carted to designated depots where a brake may be permanently worked, and the tow thus cleaned and scutched, may be sent to market to be cottonized at the factories where used.

By the foregoing method the roots of the flax are left to rot in the ground. The *shives* or woody portions of the stalk after breaking, if the straw is unrotted, are said to make good feed for stock, if used before fermentation takes place. In unrotted straw, the shives are stated to be equal to three-quarters of the weight of the original straw. The tedious rotting process heretofore practised, is avoided by the new mode. The only value in rotted above unrotted straw for the manufacture of fibrilia, is the difference in weight, which is about one-half. A ton of unrotted straw, when fully rotted, will only weigh about ten or twelve hundred pounds. It will be seen that the farmer can afford unrotted straw for one-half the price of rotted, besides saving the trouble and expense of rotting; therefore it is better for both the farmer and manufacturer that the straw should not be rotted. As to the effect of flax on the soil, it is thought that if the shives or woody part of the stalk and the oil-cake from the seed, shall be retained for consumption on the farm, it will not exhaust the soil more than any other crop.

The yield of flax varies, like other crops, according to soil and culture. Properly cultivated on a good soil, it should yield two tons of unrotted straw to the acre after the seed is thrashed, with twenty-five bushels of seed. Mr. Allen's estimates are as follows:

Twenty bushels of seed per acre, at $1.50	$30
Lint after breaking and scutching with Randall's brake and scutcher, should yield 1,000 lbs. at 4 cts	40
Value of shives for feed	10
	$80
The cost of raising the flax crop is estimated as the same as that of oats or wheat, save in the process of breaking and scutching, which might cost by horse-power $5 per ton	$10
	$70

Leaving $70 as the net profit per acre, which may be increased or diminished according to soil, cultivation and management.

We give these estimates without endorsement. As we have before said, flax has been found a paying crop in some of the Western States, merely for the seed. If the straw can be turned to account by Mr. Allen's process, it is obviously so much gained. We notice that a correspondent of the *Homestead*, in a late number of that paper, says he has cultivated a little flax for several years past, solely for the seed, which he has fed, boiled, to his calves. He adds—"It is worth all it costs for this purpose. If the flax had been taken care of, it would have been worth as much as the seed. Not having any use for it, nor anything to dress it with, it was left to rot in the field. I find it easy to cultivate, and hope some market may soon be found for the fibre as well as the seed."

A Wrinkle for Farmers.—When any of your cattle happen to get swelled with an over-feed of clover, frosty turnips, or such like, apply a dose of train oil, which, after repeated trials, has been found to prove successful. The quantity of oil must vary according to the age and size of the animal. For a grown up beast of ordinary size the quantity recommended is about an English pint, which can be administered readily enough, taking care at the same time to rub the belly well, in order to make it go down. After receiving this medicine, the beast should be made to walk about till such time as the swelling begins to subside.

Trenching and Subsoiling.—One of the members of the Eastern Pennsylvania Fruit Growers Society, stated that he had had ground trenched about two feet deep at a cost of $60 per acre, and the crop of potatoes the following year was so heavy as to pay the whole original cost. Another said that he had found horse labor subsoiling to the depth of eighteen inches, cost him about $25 per acre, and hand labor, twenty-four inches in depth, $65 per acre.

Horticultural.

AMERICAN STRAWBERRIES IN ENGLAND.

The following remarks are taken from a recent number of the *Florist and Fruitist*, an ably conducted English periodical. The strawberry generally, we think, is of inferior flavor on this continent, to what it is in the British Islands, arising probably from a greater difference of climate than of soil. Our hot and dry weather is no doubt the principal unfavorable condition. In some of the higher and cooler parts of Canada, especially on calcareous soils, the strawberry, when properly selected and cultivated, often attains to a large size, with a rich and agreeable flavour. Some of the most esteemed European kinds do not sustain their high reputation, when transplanted here.

Are American Strawberries worth growing? is a question often asked of us, and doubtless it is a question likely to interest many of our readers, more especially now that the Strawberry is a fruit of especial notice, which is manifest by the number of seedlings continually coming before the public.

There are now a great many varieties of American origin, and we may suppose that nine-tenths are worthless, judging from those we have grown, such as Hovey's Seedling, Ross's Phœnix, &c., which are considered by all American Pomologists to be among the best in their collections. Now, these varieties are quite inferior to our class of Pine Strawberries, and Mr. Rivers, who is a good authority on the subject, having imported a great many varieties of American fruit, says of the Strawberries, that they "do not seem to be adapted to our climate," and "the best of them is Hovey's Seedling, which grows most vigorously, but is a shy bearer, and of a brisk agreeable flavor, but not at all rich." And Downing, in a work on American fruit, says, "that Hovey's Seedling is undoubtedly the finest of all varieties for this country, and is well known throughout all the States, and has everywhere proved superior for all general purposes to any other large fruited kind." Although we have not grown or heard of an extraordinary American Strawberry finding its way across the Atlantic, it is no reason why a good one should not some day come forth, that is, when they have passed through many stages of improvement like our own, for, in all probability, our original stock, from whence all our present excellent varieties sprang, were natives of America, viz., the Old Scarlet and Carolina.

The Americans admit that some of the European varieties are superior to their own in size and flavor; still they say, "it is impossible to cultivate them with success, and that every recommendation of these foreign hermaphrodites, as productive and valuable for market purposes, is a *gross imposition*." They are also termed *fancy* varieties, and Dr. Bayne, who is said to be a "highly intelligent cultivator," says, "all English varieties have proved with me *worthless trash*." Now, I think, we may return the compliment with a good grace; the only difference is, that we could grow the American varieties in this country perhaps better than they can themselves, only for this simple reason, that they are not worth growing in comparison with our own kinds.

It seems evident that the climate of the States is not well suited to the successful cultivation of the Strawberry, and that none of our European varieties thrive so well as their own inferior strain of seedlings, which are mostly of the Old Scarlet class, and which nearly every grower in

this country has ceased to cultivate, to give place to other kinds of superior merit.

Lately, we have received a descriptive catalogue of American Strawberries grown by W. R. Prince & Co. of Long Island, N. Y., which enumerates 153 varieties, among which number, 63 named kinds, and said to be *splendid*, are their own seedlings, and sent out by themselves; now if all are as good as they are represented, we may suppose them to be the most successful raisers of Strawberries in the world; and in all, their catalogue contains 109 varieties of American origin, and mostly all the European kinds are rejected, among which are all *Myatt's seedlings;* and, when we find that Nicholson's May Queen is described as of fine flavor, Omar Pacha very large and beautiful, and Sir C. Napier as a late kind, we cannot place much confidence in their display of judgment, or the correctness of the description of other kinds.

We have also before us a circular respecting a new Strawberry, named Downer's Prolific Seedling, from J. S. Downer, a nurseryman near Elkton, Todd County, Ky. This wonderful Strawberry is reported to be "ten times as productive as any of the 100 varieties cultivated in that vicinity, averaging 123 berries to each single plant, and of course, in size and flavor, equal to any other variety in cultivation, and not to be sent out till 25,000 plants are ordered;" so Mr. Downer intends, if possible, to be on the safe side, as it is coming out at a very high price, accompanied with a deal of *puff;* and all who may think fit to favor Mr. Downer with an order will have to pay about £7 for 100 plants.

We must leave our readers to judge for themselves whether it is all gospel that our American friends set forth; as for ourselves, we think no American variety would improve our present collection.

THE CURCULIO.

At a recent Show of Fruits at Albany, Dr. Fitch, the well-known Entomologist, delivered a Lecture on the *Curculio* and *Black Knot* on plum and cherry trees; from which we take the following remarks:—

"Dr. Fitch said the curculio had been in his thoughts, and had occupied much of his time, the past year. He considered it the most destructive insect we have in our country. The wheat midge had done more injury the few past years, but he thought its parasite would master it. The curculio, unlike other injurious insects, was a native of the country. It had been known for one hundred years, and yet its ravages had not been checked. We had evidence, from Bartram and others, that in 1806 it destroyed the nectarines around Philadelphia, but did not injure the plums. It afterward attacked the plums, and finally cherries, apples, and pears. All the Agricultural Journals contain articles describing this insect and its habits; and yet it is not generally known where it keeps itself three-fourths of the year. It is known that the insect deposits an egg in the young fruit, which falls, and the maggot makes its way into the ground, and in three weeks it is ready to come out a perfect beetle. But what becomes of it until the next June, was a very important question. The Doctor was of opinion, from his own observations, that what was known of the curculio was only a small part of its history, and that if there was no young fruit it would not be discommoded, but would live on and prosper. They are found upon the plum, cherry, thorn, apple and butternut. Those upon the butternut are larger than those upon other trees, showing that this tree is congenial to them. They are plenty until autumn, at which time they may be found in great numbers upon the golden rod. They generally appear three weeks before there is any young fruit in which they can deposit their eggs. Some of them appear to be epicures, and choose the best fruit, while others, from choice or necessity, are content with the apple and other more common fruits. The non-productiveness of apple orchards was chargeable to the curculio.

The Doctor combated the idea of Harris, that the curculio that appears in the spring is the late crop that has remained dormant in the ground from the July previous, as he thinks the heat of August would certainly mature them. He believes they are hatched in due time, and in the absence of fruit in proper condition for their use, deposit their eggs in the under bark of the apple, pear, butternut, &c., and in the black knot excrescences on the plum and the cherry limbs. Mr. Langworthy, of Rochester, sent him some apple bark, on which was plainly visible the cresent mark of the curculio. It was also plainly seen on the butternut bark. The thorn apple, falling from the bush in early winter, often contains the egg of the curculio. These remain dormant until the warm weather of spring, as doubtless do those that are laid in the bark late in the

season. Many of the matured beetles, on doubt, shelter themselves for the winter in crevices of the bark and other snug places, where they remain dormant.

The *black knot* was a disease analagous to cancer in the human system, yielding only to similar severe treatment.

The Doctor summed up the subject by stating that there were three generations of the curculio during the season. The earliest, no doubt, deposite their eggs in the tender bark of the young shoots before the fruit appeared. Many of the last crop were overtaken with the cold and sought shelter in the crevices of the bark. Some of the worms had entered the ground so late as to remain dormant until hatched by spring warmth, while others doubtless remain in the bark of trees in the larva state.

No parasite had been found to prey upon this insect until within a few months. D. W. Beadle, of St. Catharines, sent him some flies which he supposed caused the black-knot. On examining these, he found them to be a curculio parasite—a black, ichneumon fly, with yellow legs and a bristle-like sting, with which it deposits an egg in the curculio worm.

Of the remedies for this insect, Mr. Fitch had nothing new to offer. He spoke of shaking the trees, but not with much confidence, as he said it sometimes failed, and the process bruised the bark and injured the tree. If the Doctor had more experience he would not talk so. Another remedy which he appeared to favor, was a wash of whale-oil soap and tobacco water.

The next day we heard the Doctor recommending plum growers to make troughs of water under their trees, as the cheapest and wisest way of saving their plums. If Mr. Fitch will obtain twenty-five plum trees, and take care of them for ten years, he will be able to talk much more wisely on this subject. Practice is the only balance-wheel for such men.

THE GARDEN.

The principal crops in the kitchen garden should now be got in without delay. Such as were sown early are now coming up, in consequence of the recent genial showers, luxuriantly, and the whole face of nature is rapidly assuming a rich and vernal appearance, indicating the full advent of spring. Summer cabbage should now be planted out, if not done before, but winter varieties will do by the middle of next month. Melons, cucumbers, corn, beans, peppers, egg plants and tomatoes, should be got into the soil as soon as there is sufficient solar heat, and the absence of considerable night frosts. For cabbage, cauliflower, &c., the soil should be deeply cultivated and liberally manured; indeed this recommendation will apply to all garden crops. After the plants are fairly above ground, the free use of the hoe between the rows, especially in hot weather, will not only keep down weeds, but will promote the growth of the crop in an extraordinary degree.

The Flower Garden will now require constant attention, Hyacinths, Tulips, and other spring blooming bulbs will soon have gone out of flower, and should be succeeded by others, whose beauties will remain longer in season. Taste in arrangement and neatness in execution are essential qualities in every successful cultivator of flowers. The following directions relative to the flower garden at this delightful season of the year, a season pregnant with hope and beauty, from the *American Agriculturist*, will be found both useful and interesting to many of our readers:

In making a selection of plants we shall have reference to securing a succession of bloom throughout the season. Probably, taken all in all, no one plant is more sought after and better adapted for bedding than the Verbena. Reveling in all the tints of brilliancy which can be desired, it has sufficient hardiness, such a good, compact habit of growth, and many of them such a sun-defying rigidity of petal, that if the tribe were extinct to-morrow, we do not know which family of plants could fill the void. It will grow and bloom in almost any soil, and under almost any conditions, but for rich and profuse blooming, should be planted about five feet apart, in soil somewhat sandy, which should be kept well open. The system of pegging down should be followed, and the decaying flowers pinched off. They will soon cover the bed. For a collection of a dozen, we would select: *Robinson's Defiance*, *Brilliant de Vaise*, and *Giant of the Battles*, scarlets; *Anna Cora Mowatt* and *Odoratissima*, purples; *Mrs. Thorburn*, and *Lady Palmerston*, blues; *Mrs. Holford* and *Annie*, whites; *Uncle Tom*, maroon; *Impera-*

trice, *Elizabeth*, violet rose, white, striped, small, and delicate foliage, and *Madama Lamouniere*, lilac striped with white. To which might be added *Le Gondolier*, carmine; *Lord Raglan*, scarlet cherry; *Fanny Fern*, brick red; *Queen of Summer*, salmon blush; *Mrs. Mildmay*, rose pink.

The Rose needs no elogium, it gives its own, in fragrance and beauty, and will ever be a favorite. For a dozen we should select, *Giant of the Battles*, crimson; *Souvenir Malmaison*, blush; *Baronne Prevost*, bright rose; *Caroline de Sansul*, delicate flesh; *Jules Margottin*, carmine purple; *Madam Laffay*, rosy crimson; *Hermosa*, flesh; *Louis Odier*, clear rose; *Aimee Vibert*, white clustered; *Madam Rivers*, flesh; *La Reine*, lilac; *William Griffith*, rosy lilac. Tea roses are not adapted to bedding, as in this latitude they require to be housed in winter. *Comte de Paris*, creamy white; *Safrano*, fawn; *Isabella Gray*, golden yellow; *La Pactole*, lemon yellow, are each worthy of a position in the flower border.

For the best twelve Pelargoniums, (Geraniums) we should take six *Tom Thumbs*, scarlet; one each of *Aurora*, cherry; *Lady Turner*, finest white; *Brilliant*, scarlet, silver edged leaf; *Consuelo*, rosy pink, white eye; *Duchess of Kent*, French white; and—*Tom Thumb* again.

Fuchsias—commonly called "Ladies Eardrop"—Of this queenly flower, it puzzles us to limit our choice to twelve. *Florence Nightingale*, scarlet tube, white corolla; *Duchess of Lancaster*, white reflexed sepals, violet corolla; *Queen Victoria*, carmine sepals white corolla; *Venus de Vedici*, white tube, violet blue corolla; *Wonderful*, scarlet reflexed sepals, violet corolla; *Prima Donna*, white sepals, violet corolla; *Macbeth; Mrs. Story; Charlemagne; Trentham; Prince Albert; Joan of Arc.*

Few hardy herbaceous plants exceed the Phloxes in brilliancy and variety. **Gœthe*, *Alice*, *Allaire*, *Bella*, *Maria Lamacq*, *Eugenie*, **Gracilis*, **Venus Cambaceres*, *Lawrence*, *Sax*, *Henri Lavergne*. Those marked * are the *Suffruticosa*, or dwarf variety, growing two feet high, and should be planted on the outside; the others are the *Decussata* variety, with strong erect stems, attaining the height of three to four feet. These plants fill up a void which occurs in August and September, are perfectly hardy, and will grow in almost any soil.

We must not forget the beautiful class of plants called Veronica. Of easy culture, they flower all the Autumn, and within the precinct of Winter. The flowers, in erect spikes of white, blue and pink, are very attractive and pleasing. If better known they would be more appreciated. Plumbago *capensis*, with light blue flowers, good foliage, and blooms nearly all the season. Vinca or periwinkle, red and white, immense bloomer, rich and glossy foliage—Cuphea, commonly called Ladies' cigar, very interesting and immense bloomer. Salva, a family of great beauty; *S. patens*, blue, and *S. fulgens*, scarlet, and very desirable. Bouvardia, a fine plant with graceful, tubular flowers in clusters. Lobelia, *cardinalis fulgens*, and *speciosa* the first having an erect stem two or three feet high, a mass of scarlet bloom, the latter bright blue flowers. The Petunias are well known, and should be in every collection; they sport greatly when raised from seed sown the previous Fall. The Lantana has a pretty flower, rank foliage with a rough stem, but is a great bloomer; the finer they grow, the more profuse they flower. They form small bushes with pink, yellow, and orange heads. The Pinks and Heliotropes are popular favorites, and will, all of them, be highly prized for their fragrance and beauty.

J. F.

Flowers.—Of all the minor creations of God, flowers seem to be most completely the effusions of his love of beauty, grace and joy. Of all the minor objects which surround us, they are the least concerned with our absolute necessities. Vegetation might proceed, the earth might be clothed with a sober green; all the processes of fructification might be perfected without being attended by the glory with which the flower is crowned; but, beauty and fragrance are poured over the earth in blossoms of endless varieties, radiant evidences of the boundless benevolence of the Deity. They are made solely to gladden the heart of man, for a light to his eyes, for a living inspiration of grace to his spirit, for a perpetual admiration.

The Greeks, whose souls pre-eminently sympathized with the spirit of grace and beauty in everything, were enthusiastic in their love, and lavish in their use of flowers. They scattered them in the porticoes of their temples—they were offered on the altars of some of their deities—they were strewed in their conquerors' path—on all occasions of festivity and rejoicing they were strewn about, or worn in garlands. The guests at banquets were crowned with them—the bowl was wreathed with them; and whenever they wished to throw beauty, and to express gladness, like sunshine, they cast flowers—*H. Howitt.*

Grafting Wax.—A very good Grafting Wax may be made by melting together one part of bees-wax, three parts of rosin, and two parts of tallow while warm, the mixture should be mixed by the hand.

The Color of Flowers Promoted by Charcoal.—A French amateur, in the Paris *Horticultural Review* states: 'About a year ago, I made a bargain for a rose-bush of magnificent growth, and full of buds. I waited for them to bloom, and I expected roses worthy of such a noble plant, and of the praise bestowed upon it by the vender. At length, when it bloomed, all my popes were blasted. The flowers were only of a faded color, and I discovered that I had only a middling *multiflora*, stale-colored enough. I therefore, resolved to sacrifice it to some experiments which I had in view. My attention had been captivated with the effects of charcoal, as stated in some English publications. I then covered the earth (in the pot in which my rose-bush was) about half an inch deep with pulverized charcoal. Some days after, I was astonished to see the roses which bloomed, of as fine a lively rose color as I could wish. I determined to repeat the experiment; and, therefore, when the rose-bush had done flowering, I took off the charcoal and put fresh earth on the pot.—You may conceive that I waited for the next spring impatiently to see the result of this experiment. When it bloomed, the roses were at first pale and discolored; but by applying the charcoal as before, they soon resumed their rosy-red color. I tried the powdered charcoal likewise in large quantities upon my petunias, and found that both the white and the violet flowers were equally sensible to its action. It always gave great vigor to the red or violet colors of the flowers, and the white petunias became veined with red or violet tints. The violets (colors)? become covered with irregular spots of a blueish or almost black tint. Many persons who admired them thought them new varieties from seed. Yellow flowers are, as I have proved, insensible to the influence of the charcoal.'—*Cottage Gardener.*

Culture of Asparagus.—In order to grow this vegetable well the soil should be deepened to a considerable extent and well prepared. It should be trenched in the fall and thrown up in rough ridges to be ameliorated by the frost of winter. Forking the ground at every opportunity and turning up fresh surfaces to the influence of the atmosphere, will have a tendency to prepare it for the reception of the seed or the plants in Spring. The beds should be four feet wide, well manured with the richest compost to which a considerable portion of salt should be added. Two rows of plants are sufficient in each bed, and the alleys between the beds, should be two or two and-a-half feet wide. Many persons plant cauliflowers or brocoli in these alleys, but this practice has been discontinued in the best gardens. The plants should be set out in drills two feet apart, and twelve inches from each other in the drills. Some persons prefer to sow the seed spaced as above, and contend that they can raise stronger plants in this way. Some market gardeners pile on a heavy coat of soil from the alleys early in Spring, and the plants growing up through this, form the slender white stems which are sold in the market, but in the best private gardens the beds are protected by a covering of rich manure during the Winter and early Spring months, this is forked up and broken before the plants come up in Spring, some fresh soil added and the beds raised to a moderate height above the roots. When treated in this way the plants throw up strong and succulent stems, which are cut some inches beneath the surface before they become hard and "stickey." By this latter method of treatment the asparagus is partly of its natural green color and of superior flavor.

Cauliflowers—The *Gardener's Chronicle*, London, quotes from a German paper the following description of the method used by the Dutch to obtain their Cauliflowers, which are famous for their size and delicacy:

In the autumn they dig deep some ground that has not been manured; at the beginning of May they sow the large English Cauliflower upon a bed of manure, and cover it with straw mats at night. When the young plants are 3 or 4 inches high, they harrow the ground that had been prepared the autumn before, and with a wooden dibble, 18 inches long, they make holes about 10 inches deep, at proper distances apart, and enlarge them by working the dibble round till the hole at the top is about three inches in diameter. They immediately fill these holes with water, and repeat this three times the same day. In the evening they fill them with sheep's dung, leaving only room enough for the young plant, which they very carefully remove from the bed of manure, and place in the hole with a little earth. Directly afterwards they give them a good watering, and as soon as the sun begins to dry them, water them again. Furthermore, as the plants grow, they dig round them and earth them up in rows. When the head is forming, they pinch off some of the lower leaves of the plant, and use them to cover the young head.

How to Make Extra Branches Grow

ON PEAR TREES.—A writer in the Virginia *Farm Journal* states that he has succeeded in starting branches on his pear trees wherever he wishes a limb to grow. He says: "A careful examination will show plenty of dormant eyes or knarls, on this stock. To produce a shoot a slit or gash is made over the eye into the wood, with a knife or fine saw, which by checking the flow of sap, starts those dormant eyes into life, and in three cases out of four a branch shoots forth."

Veterinary.

HANDLING HORSES WHILE BEING SHOD.

[The following remarks of a Veterinary Surgeon in a recent number of the *Ohio Cultivator*, are of such great and general importance that we here insert the article for the benefit of our readers. Firm, but kind treatment, is essential to the efficient management of the Horse.—EDS.]

Many horses, both young and old, are much spoiled by shoers. Horses sometimes stand quiet and easy, at other times they refuse to stand still while one foot is up—they struggle until it is released, and frequently the shoer beats, speaks sharply, swears and frightens the horse, so that he must be held by force or abandoned. Another takes the tools and sets his shoes without any trouble. Now for a few of the reasons:

Under certain circumstances, the muscles cramp, causing severe pain. Almost at any time a horse's hind leg may be raised so high, or in such a position, as to cause severe cramping not to be endured. When a horse has had all the muscles relaxed by exercise, and stands and cools quick, an unusual position will most certainly produce cramping, and at the same time makes him irritable. A horse that has stood for some time in the cold, uneasy, and suffering with anxiety to get home, is in bad condition to stand the bangs and often painful position of shoeing, and too often fretted to that degree that he never gets over it—too often forced to stand and endure the pain of severe cramping, pricking, etc., until he will never forget it, and often refuses to enter the shop again.

Some horse shoers have a habit of raising the foot and leg so high that no common horse can stand it, and thus he will shoe horses half his lifetime before he knows the fault is in himself. The awkwardness and ill temper of some shoers is sufficient reason to withdraw your patronage, although they may do their work well. The damage done by forcing the horse to stand in pain, and the injury to his disposition, is infinitely more injury than to go ten miles, and spend a day and pay double price to one who has some sympathy, and shoes him without pain—one who exercises some reason and judgment and patience, and seems to sympathise with the suffering animal—has little or no trouble, and does no damage.

I once knew a horse that if he was minus a shoe, would go by himself to a particular smithey, and there stand until the shoe was set. I once owned a horse that was shod three or four years without any trouble—at last he was sent to a shop to be shod, the shoer being a little intoxicated, frightened him, beat and abused him in such a manner, that he ever after feared to approach a blacksmith shop, and if forced to enter one, would tremble with fear. I think I shall be justified in saying that one-half of the horse shoers are incompetent to the task, saying nothing about their workmanship of setting shoes. I have no doubt but some fancy shoers are the cause of many splints, bogs and curbs, as well as kicking, cringing, pulling at the halter, etc., etc.

Reader, if you are the owner of a good horse, go yourself and see him shod, unless you are well acquainted with the shoer, and know him to be careful, patient, mild tempered and humane. Withdraw your patronage from all reverse characters, before you sustain a loss. Never submit to or employ a shoer, whose character or intellect is inferior to that of your horse. If you do, you may have him lamed, abused and spoiled.

THRUSH IN HORSES.—Thrush, or, as some call it, *frush*, is a disease of the horse's hoof very prevalent in the United States; it is a disease so well known among horsemen that any description of it seems superfluous. Its diagnostic symptoms are fœtid odor, and morbid exudation from the frog, accompanied with softening of the same. For a common thrush, which does not occasion lameness, the remedy is cleanliness: let the feet be washed night and morning, and occasionally immersed in salt and water; the trouble will then disappear. In inveterate cases of this kind, our object must be to prevent decomposition—in the use of antiseptics: a charcoal poultice now

and then, and the free use of pyroligneous acid and salt are the best means. A few doses of the following composition will also be needed: sassafras, sulphur, salt, and charcoal, equal parts. Dose, one ounce daily. A dressing of fir balsam may be applied to the frog and sole, which is to be confined there in the usual manner. Thrush is often the result of morbid habit in the system of the horse, giving rise to an excess of morbific products, which naturally gravitate to the feet, and there find an outlet; therefore we should not be in too much of a hurry to stop such issue, for by so doing the matter may be re-absorbed and produce sympathetic fever, swollen legs, etc. The safest way, therefore, is to treat the disease both locally and constitutionally.—*Dadd's Modern Horse Doctor.*

Remedy for Cracked Hoofs.—A correspondent in the *Cultivator* has found the following treatment effectual in cases of split hoof in horses. Care should be taken not to allow the old crack to tear its way upwards after the new hoof forms.

Make an incision at the extreme top of the horny substance, cross-wise of the crack, and parallel with the horny hoof, some two inches each side of, (across and above) the crack. The old crack, if left to its way, will continue to grow up as fast as the hoof grows down—if not checked by a crosscut. After this, with careful treatment till there is a new hoof formed, the horse will be as sound in that as any other foot he's got.

Look at the Points.—Most persons think that a finely bred horse must breed good colts, without ever looking over his points; and many who are desirous of breeding a race-horse, will put a fine mare to a very ordinary looking and badly shaped horse, merely because he was got by such a horse. From such breeding, weeds must come. But the finest race-horses are not those who will get the best half-bred horses for all work.—*Farmer and Planter.*

The Supposed Deterioration in the Breed of Horses.—"Our breed of race-horses is the finest in the world. £50 is paid to send a mare to a first-class stallion. No expense is spared, and nothing is left undone to promote the breed of good useful horses. We supply Europe, America, South Africa, India and New Holland with strong and useful thorough-bred stallions. Of all notions, none are so fallacious as to suppose, because one hundred years ago race horses carried heavy weights, and ran four, five, six and eight miles, that they were to be compared to horses of the present day. I can prove (not within the limits of this letter) that they were little better than common hacks; but because men a century ago were so barbarous, it is no reason that in a more civilized age we should commit the same excesses. If we prefer light weights and short distances, it is no argument that our horses are incompetent to carry heavy weights and to stay a long distance, or that they have declined in strength and stoutness. It has become the fashion not to ill-use a good horse, therefore 10st. 7lb. is considered an outrage, and 11st. a barbarism; but I have had a thorough-bred horse which could carry 18st. to hounds."—*Bell's Life in London.*

Heaves in Horses.—The *Farmer and Gardener* gives the following as a cure for heaves in horses:—"Take smart-weed, steep it in boiling water till the strength is all out, give one quart every day, mixed with bran or shorts, for eight or ten days. Give green or cut-up food, wet up with water, during the operation, and it will cure.

Cleansing Drink for a Newly Calved Cow.—Take 1 lb. Epsom Salts; 2 oz. ground Ginger, and 1 lb. of Treacle, mixed in a quart of warm ale. To be followed by warm bran mashes as much as the animal will drink. The cleansing of a cow after calving is a matter of more importance than is generally thought. A little linseed or oil cake is also excellent.

The Dairy.

MAKING OF STILTON CHEESE.

Mr. Stallard of Leicester, has communicated for Morton's Cyclopedia the following details of the process: In general one cheese is made daily. The night's milk is set aside to cream, and in the morning it is skimmed, and the cream added to the new milk. The whole is now made of a proper temperature (84°) and the rennet then added. The curd should be fully formed in one hour and a half; if formed more quickly it will be poor and tough; and if much longer it requires to be warmed, which is also injurious. The curd is not broken up in the common way, but is carefully removed in slices by the skimming dish, and placed upon a canvas strainer or sieve. When the curd has been placed on the strainer, the ends are tied up, and the whey pressed out by gently twisting

round the whole mass—the ends being stationary, and suspended on a stick laid across the cheese tub. It is allowed to drain until next morning, unless the weather is very warm, when the curd should be removed from the strainer, and placed in a clean dish in a cool place, where it is cut into thin slices, and put into a hoop made of tin, perforated with holes, and rather larger than the intended cheese. A clean strainer or cloth is put between the hoop and curd; and, as the slices of curd are laid in, a small quantity of salt is sprinkled between every second or third layer. The hoop containing the curd rests on a clean cloth, and is covered with another, but no weight is applied to extract the whey. Next morning the curd is taken out of the hoop, clean strainers and cloths are employed; it is then inverted and placed in the hoop as before, and afterwards pricked with iron skewers in the sides, to facilitate the extraction of the whey, and drying of the curd. These processes are repeated for four or five successive mornings, until the curd becomes firm. During this consolidating process, the cheeses are kept in a warm place, and in cold weather they are set in *tins* before the fire, or in heated ovens constructed for this purpose. It is necessary for the perfect extraction of the whey, that the drying temperature be raised to about 100°. The utmost cleanliness and care are indispensable during the whole process. The whey should have a free run from the curd, and the strainers should be washed and then dried thoroughly in the open air, every time they are taken from the curd.

When the cheese has become sufficiently firm, it is pared and smoothed. The inequalities in the sides where the slices join, are filled up by parings from the projecting parts, and the top and bottom are also smoothed by paring with the knife, and lying alternately on a flat board. A strong fillet of canvas, long enough to encircle the cheese two or three times, is then firmly bound round it, and held tightly by strong pins; a clean, dry cloth is also placed under and above it. The binder and cloths are removed every morning, and all cracks filled up. These operations are continued until the outside becomes hard and wrinkled, or *coated*, as it is termed. After this, the cheeses are removed to the drying room, where they are regularly turned and cleared from the mites. In warm weather the flies are apt to attack cracks or soft parts of the cheeses; and when this occurs, the best plan is to scoop out the affected part, fill it up again with the soft part of another cheese kept for the purpose, and cover carefully with cloths.

As the making of the common Leicestershire cheese differs little or nothing from the mode pursued in Gloucestershire and Cheshire, it is considered unnecessary to enter into detail on the subject, as it would be in a great part, merely a repetition of what has been already stated.

The experience of the Leicestershire dairy farmers with regard to the quantity of cheese from a given quantity of milk, is much the same as in other dairy counties—*i. e.*, one gallon of full milk to one pound of marketable cheese. Mr. Stallard, from whom the above details have been obtained, states that in autumn one gallon of milk will produce eighteen ounces of cheese.

Domestic.

How to Select Flour.—The following rules for forming a judgment of flour, when purchasing for use, can, doubtless, be relied upon, and may be worth recollecting by housekeepers. First, look at the color; if it is white, with a slightly yellowish or straw-colored tint, buy it. If it is very white, with a bluish cast, or with black specks in it, refuse it. Second, examine its adhesiveness; wet and knead a little of it between your fingers; if it works soft, and is sticky, it is poor. Flour from spring wheat is likely to be sticky. Third, throw a lump of flour against a dry, smooth, perpendicular surface; if it falls like powder, it is bad. Fourth, squeeze some of the flour in your hand; if it retains the shape given by the pressure, that, too, is a good sign. Flour that will stand all these tests is safe to buy. These modes are given by old flour dealers.

Unhealthiness of Hot Bread.—When will our good housewives learn the science of preparing and setting forth only healthy food? Hot bread and saleratus cakes ought to be indicted for murder in the second degree. The *Scientific American* says that Dr. J. G. Bunting has published some very interesting and useful facts in relation to the digestion of food in the human stomach, deduced from his experiments with St. Martin, the man with an enlarged bullet hole in his side, through which can be seen all the processes of digestion. In speaking of the nutritious property of farinaceous food, and the proper state in which it is most easily digested, he gives the following excellent advice:—

Hot bread never digests. Bear this in mind, reader, if you are accustomed to eat the light and tempting biscuit at tea, or the warm loaf which looks so appetizing upon your breakfast table. Hot bread never digests. After a long season of

tumbling and working about in the stomach, it will begin to ferment, and will eventually be passed out of the stomach as an unwelcome tenant of that delicate organ, but never digests—never becomes assimulated to, or absorbed by, the organs that appropriate nutrition to the body. It is a first-rate dyspepsia-producer. The above is truth, as it has been repeatedly proved from actual observation through the side of Alexis St. Martin.

A Good Recipe for Vinegar.—Take 40 gallons rain water, 1 gallon molasses, and 4 lbs. ascetic acid. It will be fit for use in a few days. Ascetic acid costs twenty-five cents per pound. This is the recipe by which most of the cider vinegar is made, which is sold in the country stores. —*Scientific Artizan.*

Miscellaneous.

THE APIARY.

TRANSFERRING BEES.

As there are many who will this spring desire to try the Langstroth hive, we give all necessary directions for taking a swarm out of the common box, or any other hive, and putting into this. The change is a perfectly safe one, both for the bees and the owner, providing the directions here given are strictly followed.

The first important step is to *get ready.* Prepare a roll of old cotton cloth, of any kind, as large as your wrist and a foot or more long, winding it with twine, or a small wire, from end to end. Obtain a large table, or wide board on which to lay the combs as they are cut out of the hive, and place it where you will not be annoyed by other bees; vessels to contain the honey; a long sharp knife to cut out the combs; a large chisel or other instrument to pry the hive apart; goose quills or a wing to brush the bees from the combs; some wrapping-twine to tie the combs into the frames, and some water to wash off the honey which will adhere to the hands.

Now fire the cotton roll and blow a few whiffs of smoke into the entrance of the hive, until the bees are driven well up into the combs, first stopping all holes in the top of the hive. Gently lift the hive from its stand and carefully turn it upside down a short distance away. Place another hive or clean box on the top of this, mouth to mouth, and wrap a sheet around to prevent the bees from coming out. Then rap smartly with flat sticks on the lower hive until the bees are mostly driven into the upper box, when this may be taken off and placed on the stand, and if the queen has been driven up, the bees will mostly go there. Take the hive to your table, or near it where you have the new hive ready. With a saw slowly sever the combs from their attachments to the sides of the hive to be pried off; cut out the combs, placing all straight thin combs by themselves to be fitted into the frames. Let every motion be gentle, as there is danger of injuring the queen, should she not have been driven from the hive. Reject all broken, irregular and clumsy combs; cut to fit closely and crowd into the frames, and when necessary tie in with twine. Should there be any projections on the combs after they are fitted in, they must be trimmed down to an even thickness with the upper parts of the frames. Proceed until all the good combs are used; placing the frames in the hive as they are filled, those containing young brood in the centre; put in the empty frames and divide the spaces equally between all through the hive; put on the honey-board and stop the passages into the upper box. Spread the sheet in front of the hive and shake out the bees from the box into which they were driven. With a spoon place a few at the entrance of the hive, and they will all soon run in. When the larger portion of them has entered the hive, it may be placed on the old stand. When the bees are all in, close the entrance so that but a single bee can pass at a time to prevent robbing. After three or four days the entrance may be enlarged.—*Michigan Farmer.*

New Species of Honey Bee.—The Apis Ligustica, or Ligurian Bee, a distinct species from the ordinary honey bee, has been successfully introduced into England. It is regarded as of great value as an abundant honey collector.

Farming.—Dr. Franklin said: "There seem to be but three ways for a nation to acquire wealth. The first is by war, as the Romans did, in plundering their neighbors; this is robbery. The second is by commerce, which is frequently cheating. The third by agriculture, the only honest way, wherein a man receives a real increase of the seed thrown into the ground in a kind of continued miracle wrought by the hand of God in his favor, as a reward for his innocent life and his virtuous industry."

PRESENTATION TO A TILE DRAINER.—Many years ago, a poor young man bought a farm near Seneca Lake, New York. Much of the soil was a cold, heavy clay. As fast as he could, he drained off the water, put in the manure, and demonstrated, by example, that farming may be made profitable. In 1835 he imported patterns of drain tile, and commenced his experiments in this line of improvement with tiles made by the slow process of hand labour. Machinery was soon used in their manufacture, and in 1851 he had laid sixteen miles of tile drains. Finding that the more he drained, and the more he manured, the richer he grew, he ventured to recommend his course to other farmers, and became a frequent contributor to the agricultural journals of New York. In one of his articles, written the 17th of December last, and published in the *Rural New Yorker*, in reply to some strictures on his system of "high feeding," he says:

"I will state that I can with more certainty calculate on three tons of hay per acre, now, than I could on one, thirty-six years ago, and I can safely calculate on one acre in pasture feeding more stock, and much better, than three would have done at that time, while I can almost always make one-half more grain of any kind than I did then—of oats or corn far more than double. High feeding and high manuring did all this."

By affixing his own signature to these publications, the name of John Johnston has long been familiar to the readers of agricultural papers, and he is sometimes called the "Great Tile Drainer," of New York.

The *Tribune* gives the following description of the articles presented to Mr. Johnston:

"The testimonial consists of a massive silver pitcher and two goblets, on all of which are engraved and embossed appropriate agricultural emblems. On one shield of the pitcher is represented a reaping field as it appears in our day, on another a mowing machine at work, and the third bears the following inscription:

Presented to John Johnston, in recognition of his services to the Agriculture of New York, by his fellow-citizens.

JOHN A. KING, and 19 others.

The goblets bear the representation of men laying tiles for drains, a ditch-digging machine, tile machine, and all manner of small tools used in 'the stupid burial of crockery'—as a certain English nobleman was pleased to term tile draining a few years ago."—*New England Farmer.*

PRIZES FOR AGRICULTURAL ESSAYS.—At a late meeting of the "Royal Agricultural Society of England," the following list of prizes for Essays was adopted.

1. Fifty sovereigns for the best report on the agriculture of Berkshire.
2. Twenty sovereigns for an approved Essay on the best period of the rotation, and the best time of year for applying the manure of the farm.
3. Ten sovereigns for the best Essay on the alterations rendered advisable in the management of land of different qualities, by low prices of grain and high prices of meat.
4. Ten sovereigns for the best Essay on recent improvements in dairy practice.
5. Ten sovereigns for the best Essay on the proper office of straw on the farm.
6. Ten sovereigns for the best Essay on the amount of capital required for the profitable occupation of a farm.
7. Ten sovereigns for the best Essay on the conditions of seed-bed best suited to the various agricultural crops.
8. Ten sovereigns for the best Essay on the adulteration of agricultural seeds.
9. Ten sovereigns for the best Essay on any other agricultural subject.

SAMPLES OF COTTON FROM DR. LIVINGSTONE, WEST AFRICA.—The Manchester *Guardian* states that Mr. J. Aspinall Turner, M. P., has kindly forwarded to the offices of the Cotton Supply Association, Manchester, an interesting case of samples of cotton and cotton yarn, which he has just received from Dr. Livingstone. The sample of cotton is excellent; but the most surprising sample is a ball of yarn spun by the natives, weighing $16\frac{1}{4}$ oz., the cost of which is one foot of calico, or one penny. The other samples of yarn are well spun and very strong. This cotton was grown in the valley of the Shire, which is one hundred miles long by twenty broad. The natives spin and weave it for their own use, and we are informed that so abundant is the cotton in this valley that a vast number of cotton trees are annually burned to the ground. The navigation of the Zambezi and the Shire is open to this cotton valley during a great portion of the year. It is evident, therefore, that a large supply of cotton may be readily obtained from this part of Africa, by the adoption of an effective agency. Dr. Livingstone deserves the utmost support, both of the Government and of his countrymen, in his most zealous efforts to develop the vast productive resources of the regions he has now opened to commercial enterprise. The samples

above referred to, are on view at the offices of the Cotton Supply Association, Manchester.

The same paper gives the following paragraph on good authority:—We learn, on authority which we consider perfectly reliable, that Government has decided upon providing Dr. Livingstone with a new steamer for the purpose of enabling him to carry out his exploration of the Zambesi. In addition to this pleasing evidence of the interest with which the present administration views the efforts for opening up Central Africa to the influences of civilization' Mr. Gladstone, we are informed, has appropriated a sum of £2,500 to the further exploration of the great Nyanza chain of lakes. The command of this latter expedition will be entrusted to Captain Speke.

Canadian Stock for Michigan.—Silas Sly & Sons, of Plymouth, the well known breeders of Durham Cattle, have purchased a splended two year old short-horn bull from F. W. Stone, Esq., of Guelph, C. W. This is one of the best animals of his age that we have seen for some time. In depth of forequarter and width of chest he is not easily matched; he is all right in the back and ribs, and the hind quarters are full and well-proportioned. The horns and muzzle are fine and well-shaped. His color is roan. This bull was sired by "John of Gaunt the 2d," an animal of great beauty, and the one that took the sweepstakes premium at the last Provincial Exhibition in Canada West. His dam was "Cherry Pie," imported in 1855; she is grand-daughter of the celebrated bull "Duke of Northumberland." We are glad to see such additions as this made to the stock of the Peninsular State.—*Detroit Tribune.*

Editorial Notices, &c.

Back Numbers.—We find that we do not succeed in getting any copies of back numbers returned, and of course we cannot supply them, not even odd copies, to subscribers. We therefore only charge subscribers with the number of copies we are able to send, at an average rate per number corresponding to the price for the year. The balance will remain at their credit, and will be made good either in additional copies of this year, or copies of next year, or, where practicable, if required, by returning the amount. For instance, if an Agent, or Secretary of a Club or Society, sends us ten dollars, with an order for twenty-two copies, from the beginning of the year, not being aware that we cannot supply the back numbers preceding 1st April, we send only the 22 copies for the present, from that date, placing the $2\frac{1}{2}$ balance overpaid to his credit, and awaiting further orders. This will entitle him to, say 7 additional copies for the same period of this year, or 11 copies from 1st July, or 5 copies of next year, as he may choose. In case of single copies, or very small orders, the parties may send us the additional amount in postage stamps required to pay for another copy or two of this year, or at the end of the year to continue the paper for next year, or, in case of not hearing from them, we will send numbers enough of next year's volume to make up for those wanting this year.

The Agriculturist Subscription Prizes.—We have now the pleasure of announcing the distribution of Premiums for the twenty successive largest lists of subcriptions to the *Agriculturist* for the current year, ordered and paid on or before the 1st day of April. The list should properly have appeared in an earlier number, but an accidental accumulation of office work prevented the requisite posting up of the accounts so soon as was intended. Several other correspondents would have been entitled to premiums if they had remitted the amounts of their orders at an early enough date. Our readers will be easily able to perceive from this statement, and when they take into consideration the mass of smaller orders, that the *Agriculturist* has obtained a very handsome circulation during the present year, and we are gratified by being repeatedly informed by correspondents that it has given general satisfaction to the subscribers. It happens, somewhat curiously, that there are several cases of ties in the twenty highest numbers of copies ordered,

that is to say, two or more correspondents ordering exactly the same number. In these cases the committee have considered that the only way the premiums can be fairly apportioned, the parties being severally on precisely the same footing in regard to having complied with the conditions and the right of each to claim the highest amount, is to depart slightly from the offered scale, and divide the amounts so placed equally. For instance, no less than 5 correspondents have ordered 33 copies each, and to these orders fall the 14th, 15th, 16th, 17th and 18th premiums offered, viz: $7, $6, $5, $4, $3. The amount of these is $25, which being divided among five orders, is of course just $5 each. The other cases have been apportioned on the same principle. The following is the list of premiums. If there are any errors we shall be glad to be informed of them at once.

CORRESPONDENTS.	No. of Copies Ordered.	Amount Premium $ Cts.
St. George Scarlett, Carlton West	226	20 00
James K. Allen, Port Hope	200	19 00
R. Windatt, Bowmanville	154	18 00
E. A. McNaughton, Newcastle	135	17 00
Wm. A. Cooley, Ancaster	125	16 00
David Campbell, Almonte	110	14 50
M. D. Caufield, Morven	110	14 50
John Shier, Whitby	66	12 50
Wm. Brough, Gananoque	66	12 50
Eric Harrington, Arnprior	51	11 00
Wm. Shirrefs, Toronto	50	10 00
James Wright, Guelph	42	9 00
John Stiles, London	37	8 00
James Young, Lanark	33	5 00
Ira Morgan, Osgoode	33	5 00
Robert Campbell, East Zorra	33	5 00
J. G. Bell, Ottawa	33	5 00
James Keefer, Strathroy	33	5 00
D. Robertson, Ottawa	27	1 50
David Ghent, Wellington Square	27	1 50
Amount		$210 00

THE AGRICULTURIST POST FREE.—For the information of subscribers and of Post Masters, we insert again the following letter from the Post Office Department.

POST OFFICE DEPARTMENT,
QUEBEC, 30th Jan., 1860.

SIR,—

I have the honor to acknowledge your letter of the 26th inst., representing that some of your subscribers have complained that postage has been claimed from them on their copies of the "Canadian Agriculturist."

In reply, I am directed by the Postmaster General to say, that the "Canadian Agriculturist" being a periodical specially devoted to Agriculture, is clearly entitled by law to free transmission by post in this Province, when addressed directly from the Office of Publication; and that Postmasters have therefore no right to charge postage thereon.

If you will be good enough to inform the Department of the names of the Post Offices whereat such charges have been made, the Postmaster General, who regrets that such errors should have occurred, will specially address the respective Postmasters in correction of their misconception of instructions in this particular.

I am, Sir,
Your most obedient
Humble servant,
EDWIN KING,
Secretary.

HUGH C. THOMSON, ESQ.,
Sec. Board of Agriculture, U. C.,
Toronto.

THE QUARTERLY JOURNAL OF AGRICULTURE, April, 1860. Washington, D. C: Larcombe & English. This is the official journal of the United States Agricultural Society, and is ably edited by the Secretary of the Society, B. P. Poore, Esq. The present is No. 1 of the 8th vol., and is a well printed thick pamphlet of 176 pages. It contains the proceedings at the eighth Agricultural Congress, or meeting of the Society, at the Smithsonian Institution, in Washington, in January, 1860, besides a number of valuable addresses and other papers on important subjects connected with the practice of Agriculture.

REPORT OF THE BUREAU OF AGRICULTURE AND STATISTICS. Printed by order of the Legislative Assembly, April, 1860.

Mr. Hutton, the efficient Secretary of the Bureau of Agriculture, at Quebec, has embodied in this Report of 28 pages, a large amount of interesting and valuable information. The following is a portion of the contents: An analysis of the Agricultural Statistical returns obtained from the different parts of the Province, a de-

scription of information of which the importance and value are every year becoming better understood; a very interesting correspondence with Mr. Courtenay, of Bury, Eastern Townships, on the practicability of successfully introducing the Cultivation of the Grape, for the purpose of manufacturing wine, and of the profitable production of silk, in that part of the Province; Reports from the Agents as to the settlement of the Free Grant Lands on the Ottawa and Opeongo, the Addington, the Bobcaygeon, and the Hastings Roads; Immigration; Report of the Superintendent on the operations on the Roads in Canada West made from Improvement fund and Colonization Grants, &c., &c. We shall place some extracts from this Report before our readers at an early day.

Several articles in the present number have been standing in type for a considerable time, having been crowded out from time to time to make room for other matter.

THE AGRICULTURIST.—As our supply of back numbers is again exhausted, subscriptions will be received from the present number to the end of the year at 31 cents per copy, with the same bonus on large orders as previously.

Market Intelligence.

TORONTO MARKETS.

MONDAY, May 14, 1860.

To-day the entire delivery of all sorts of grain amounted to 1630 bshls. Prices without change, and the latest advices from the British markets, brought by the Canadian, report breadstuffs as dull.

FALL WHEAT.—With a supply of 750 bushels, the prices ruling were from $1 45 to $1 50 for prime shipping samples, the average being about $1 48. For inferior and common, the rates were from $1 40 to $1 45.

SPRING WHEAT—250 bushels sold at from $1 15 to $1 20½ per bushel.

PEAS—255 bushels found ready sale at from 63c to 65c per bushel.

OATS—300 bushels went off at from 32c to 35c per bushel.

BARLEY—Only 75 bushels in market, which brought from 70 to 75c per bushel.

HAY—In moderate supply, and worth from $12 to $19 per ton.

STRAW—Worth from $6 to $9 per ton.

FLOUR—Superfine No. 2, $4 62 a $4 80; do No. 1, $5 10 a $5 20; fancy spring, $5 45 a $5 50; fall, $5 62½ a $5 75; extra, $6 a $6 25; double extra, $6 25 a $6 50.

PORK—$6 per 100. Cured meats are firmer. Mr. A. McFarren made a sale last week of 300 green hams at $9 25 per 100.

NEW YORK MARKETS.

NEW YORK. May 14.

FLOUR—Receipts 2,074 barrels; the market is dull and 5 to 10c lower; sales 5,600 barrels at $5 30 for superfine State; $5 35 to $5 40 for extra State; $5 30 for superfine Western; $5 35 to $5 70 for common to medium extra Western; $6 05 to $6 15 for inferior to good shipping brands extra round hoop Ohio.

CANADIAN FLOUR—Is dull and drooping; sales 400 barrels at $5 55 to $7 50 for extra.

RYE FLOUR—Steady at $3 50 to $4 20.

WHEAT—Receipts 20,896 bushels; market dull and heavy and nominally 1 to 2c lower; sales 1,000 bushels Racine at $1 26; prime Milwaukee Club can be bought at $1 28.

RYE—Quiet at 86c.

BARLEY—Dull and drooping; sales 3,500 bushels of Canada East on private terms.

CORN—Receipts 135,763 bushels; market very heavy and fully 2c lower; sales 65,000 bushels at 75c to 77c for mixed Western, closing at the inside price for sound parcels; 79 to 80c for round yellow.

OATS—Dull and heavy at 41½ to 42½c for State, Western, and Canadian.

PORK—Market quiet and unchanged; sales 850 barrels at $17 50 to $17 62 for old mess; $18 25 for new mess; $12 75 for old prime, and $13 87 to $14 for new ditto.

BEEF—Quiet; sales 375 barrels.

LARD—Firmer; sales 350 barrels at 11⅛ to 11⅜c.

BUTTER—Is in moderate demand at 12c to 18c for new Ohio and 13c to 19c for new State.

CHEESE—Steady at 6 to 11c.

BUFFALO MARKETS.

BUFFALO, May 14.

WHEAT—Dull and heavy, and parties 2 to 6c apart in their views for Spring and Club; no sales reported.

OATS—Nominal at 36 to 37c in bulk and in bags.

BARLEY—Quiet at 65 to 68c for ordinary to choice.

RYE—In moderate request; sales 1,900 bushels State, 60 lbs. to the bushel, at 80½c; and 350 bushels choice Western, 55 lbs. to the bushel, at 83c.

YONGE STREET SEED STORE AND FLOWER GARDEN,

Established 1836.

Fresh Garden, Field and Flower Seeds, for Spring sowing.

THE Subscriber begs to inform his friends and the public, that his stock of Fresh Seeds is now complete, and very extensive, embracing almost every sort of Seed that is adapted to the country.

The stock of Agricultural Seeds is large and well selected, and the vitality of each sort being fully tested, the genuineness of the seeds may be fully relied upon.

Comprising a large stock of:—Spring Wheat, Spring Tares, Tartar and Poland Oats of the most approved kinds; Field Peas, including Golden Vine, and other approved sorts, White and Black Eyed Marrow Fats; Barley, two and four-rowed; Imported Purple and Green Top Swedish Turnip, Imported White Globe do., Imported Yellow Aberdeen do., Imported Six-weeks or Stubble do., Imported Red Round, Red Globe and several other sorts of Turnips; Long Red and Yellow Globe Mangel Wurzel; Sugar Beet and Field Parsnip, Large White Belgian Carrot and Spring Rape; Long Orange, Red, Surrey, and Altringham Carrot; Timothy, Orchard, and English Rye Grasses; Red and White Dutch Clover; French Lucerne, Cow, and Hungarian Grasses, Alsike or Perennial Clover; Yellow and White Millet; Early Potatoes of the most approved sorts; Corn, 8 rowed Early Canada, King Philip, Yellow Dutch, and several other sorts.

Horticultural Books and Garden Tools, Draining Tools, One Horse Ploughs, and Cultivators of all kinds.

The Subscriber has also a full and general assortment of all kinds of Garden Seeds suitable for the country, a catalogue of which, with directions for sowing seeds, can be had gratis.

Merchants and Agricultural Societies ordering seeds in bulk will be supplied at wholesale prices.

Complete assortment of Garden Seeds neatly put up in small papers, with directions for sowing, and sold by the box, containing 150 papers at very moderate prices.

Twenty packages of Flower Seeds, choice sorts, will be sent free by post to any part of the province, to the address of any party remitting $1, free of postage, or 25 packages, postage unpaid.

JAMES FLEMING,
Seedsman to the Ag'l As. of U. C.

Toronto, February, 1860. 6-t

SEEDS! SEEDS! SEEDS!

TORONTO SEED STORE!

Corner of Front St. and West Market Place

THE Subscriber in returning his sincere thanks for the partonage so liberally extended to him for the past four years, since commencing the business, would now beg to direct the attention of his friends and the public, to his large and well assorted stock of

FRESH GARDEN, FIELD AND FLOWER SEEDS,

All of which have been procured with his usual well-known care and practical knowledge from parties in Europe and America, personally known to him; he would therefore venture to say that the quality of all his Seeds cannot be surpassed in this Country or anywhere else.

FARMERS and GARDENERS would do well to examine before purchasing elsewhere, for it is their interest particularly to procure the best of seed to be had, and SPURIOUS SEEDS are often offered by unscrupulous parties under pretended inducements, which, if depended on, may prove fatal to crops, on which purchasers depended for a living.

☞ No seed issoldin his establishment without first being carefully tested.

Large supplies of all the leading varieties of the different kinds of seeds most suitable to this climate, are constantly kept on hand.

Catalogues with full directions for sowing and raising vegetable and other seeds, may be had gratis, on application; and being a practical gardener of 19 years' experience, he will always feel happy to give all necessary information, personally, regarding the mode of cultivation, selection of varieties, &c., gratuitously to any of his customers.

For the convenience of those who wish to stock a small Garden with Vegetables and Flowers, but are unacquainted with the proper quantities for that purpose, he has collections ready put up.

Price of Collection of Garden Seeds, $2.
" " Flower Seeds, 1.

J. A. SIMMERS,
Seedsman,

Corner of Front St. and West Market Place.

Toronto, March 12, 1860. 6-t

Five Splendid Strawberries.

HOOKER–Very productive; large, beautiful, and of unequaled quality.

Wilson's Albany,—Exceedingly productive; fine for market.

Triomphe de Gand—Immense size; splendid appearance, and *high flavor.*

Pyramidal Chilian — Very handsome; productive, hardy, and *good flavor.*

Large Early Scarlet—The earliest; productive and *excellent.*

As it is impossible to secure all the excellencies of this most popular fruit *in one variety*, we offer the above as comprising, in five sorts, the various points desirable.

We again confidently RECOMMEND the HOOKER, as by far the best for family use, if only one sort is to be planted—combining a greater number of excellencies than any other variety.

☞ All of the above have perfect flowers, and will produce excellent crops, if planted singly or together.

☞ Order directly from the Nurseries, to be sure of the *genuine*—"The Hooker" originated on our grounds.

Money, at our risk.

PRICES—(Securely packed to be forwarded by express):

Per 100 plants of any of the above varieties,.....	$2 00
" 100 plants 20 of each variety,....	3.00
" 500 plants 100 of each variety,...	7.50
" 1000 plants of the Hooker.....	10.00

H. E. HOOKER & Co.
Commercial Nurseries,
March, 1860. *Rochester, N. Y.*

HUNGARIAN GRASS.

This valuable grass was introduced into this neighborhood three years since by our County Agricultural Society, and has given very great satisfaction to all who have tried it. Its ordinary yield is FOUR TONS TO THE ACRE, and in some cases SIX TONS have been cut. Cattle and all kinds of Stock are very fond of it, preferring it to Timothy. Its fattening qualities too are believed to be superior to those of any other known grass.

The Subscriber has obtained a quantity, and will send to any person making a post-paid application, sufficient to sow one-third of an acre for One Dollar, or One Bushel for Five Dollars.

All seed will be sent free of charge.

ARCHIBALD YOUNG,
Treasurer,
Lambton County Agr. Society

Sarnia, February 10, 1860.

SPRING FAIR.

TOWNSHIP OF GORE OF TORONTO AGRICULTURAL SOCIETY will hold their Spring Fair at CLAIREVILLE, on the Third Wednesday in April, 1860, and their Fall Fair at MALTON, on the Third Wednesday in October.

By order of the Board,
J. P. DELAHAYE,
President.

Gore of Toronto, March 19, 1860. 7-2t

AYRSHIRE CATTLE.

PATRICK R. WRIGHT, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young BULLS and HEIFERS for sale. His herd is well known as the best in Canada West, and his terms of sale are liberal.

☞ Full Pedigree of all animals—U. C. Stock Register.

April 2, 1860. 7-6m

YONGE STREET SEED STORE.

CHOICE VEGETABLE & FLOWER SEEDS FREE BY MAIL.

THIRTY SIX VARIETIES FOR TWO DOLLARS.

THE Subscriber, wishing to give parties who reside at a distance an apportunity to test the quality of his Seeds, will, on receipt of $2, free of postage, send free to any Post Office in Canada, 24 Full Sized Papers of VEGETABLE SEEDS, many of them containing half an ounce of seed, and 12 Papers of Choice FLOWER SEEDS, with Descriptive Catalogue and Box included—the seeds to be of my own selection. None but the most useful and desirable varieties will be sent.

JAMES FLEMING.
Seedsman to the
Agricultural Association of U. C.

Toronto, Jan., 1860.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Advertisements—Five cents per line each insertion.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first six numbers of the current volume, the subscription price of the "Agriculturist" from 1st April to the end of the year, will be 37½ cents per copy; nine copies for three dollars.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, JUNE 1, 1860. No. 11.

JUNE.

The "leafy month of June" commences this year with vegetation further advanced than is the case in the average of seasons at this date. Pasture for cattle has come in early, the season was in every way favourable for getting in the spring crops, and the crops have generally as promising an appearance as could be desired. We have been better off in this respect than our fellow subjects in the British Islands. There, although vegetation ordinarily commences from one to two months earlier than in this country, we should judge from the newspaper reports that it has been this year very little, if any, in advance of us. Mr. Caird, in a late letter to the London *Times* said, that the unusual lateness of the season, and the extraordinary dearth of roots and fodder, were driving stock farmers to their wits' end for the maintenance of sheep, cattle and dairy stock. The cost to which they have been put for purchased food and corn, is quite unprecedented, and the quantity of corn thus consumed will undoubtedly enhance the price of bread, while the reduced condition of all kinds of live stock will limit the supply of meat, butter and cheese. An early spring would have been invaluable, but that hope was lost. Mr. Caird, in suggesting remedies, goes on to recommend the use of nitrate of soda upon young grass or seeds, and all good meadows, as a means not only of increasing the produce greatly, but also of forwarding the growth a fortnight or three weeks. He buys the article at 13s. 6d. stg. per cwt. and uses it pretty largely at the rate of 2 cwt. an acre. He also recommends the addition of 1 cwt. of Peruvian Guano, or 2 cwt. of the best superphosphate of lime. He thinks that the application of these manures in such a season as the present has been in England cannot fail to be remunerative, and recommends that they should be applied early in the season and during damp weather.

The most serious exception to the favorable character of the season has been the injury to the fall wheat by the winter and spring frosts. We believe that the amount of the injury has been somewhat exaggerated, and since the setting in of the growing weather the wheat fields have recovered wonderfully, so much so that some farmers who ploughed up their fields are now in some cases disposed to regret doing so. There is no doubt however, that the injury has been very great in some localities, and where there was evidently not plant enough upon the ground to make a

crop, it was of course much better to plough it up, and put in something else. This season, in regard to the wheat crop, affords an illustration of a truth, which will become every year more apparent, viz: that the system of fallowing and sowing grain crops incessantly upon old heavy lands will not answer. Thorough drainage must be adopted, with a better rotation of cropping, embracing two or three years in grass, so as to give the land the porous, fibrous texture, somewhat similar to new land. Wheat on new lands this season, or on dry loamy soils, has not suffered as it has on the frequently cropped, heavy lands.

Before the commencement of June the general spring sowing will have been almost fully completed. An occasional crop of oats may perhaps, however, be sown after the 1st of the month, on good, moist land, with some prospect of a crop. The grain would probably be light, but there would be a good growth of straw. Where from any cause there is not a sufficiency of meadow upon a farm, nothing can afford a much better substitute than a good growth of oats, cut in the unripe state, a little after flowering, and cured in the same manner as hay. Potatoes may be planted during the first week in June in good land, and produce a good yield, although perhaps they may not ripen so well, and may be more subject to the rot, than if planted earlier. The small, early ripening kinds of Indian Corn may also be planted from the 1st to the 10th of the month, and if put in upon fresh, well manured land, and carefully hoed and attended to afterwards, may in an ordinarily favorable season be depended upon for ripening in good time. Indian Corn is also an excellent crop to sow thickly for foddering purposes, either for soiling cattle, or to cure for winter use. Hungarian grass may be sown at any time during this month, and if well put in and no damaging frost occurs, will produce a large amount of good fodder. About 16 lbs. of seed is required to the acre. For sowing Swede Turnips, from the 1st to the 15th of this month is the proper time. They should be sown in drills, about 27 inches apart, upon well prepared land, the manure ploughed in broadcast, or deposited in the drill; seed, one or two pounds per acre, and if drilled in with fine bone dust, or superphosphate of lime, they will be forwarded in growth, and will get more rapidly into the rough leaf and out of danger from the fly. The common Purple Top Swede is probably fully equal in every respect to any of the newer varieties, and those who can obtain sound and reliable seed of this sort need scarcely look any further. The Kohl Rabi is beginning to be looked upon as a very valuable field crop in England, and likely eventually to rival or supersede the turnip, especially since the latter has become so liable to a species of rot. The plants are raised in a seed bed and transplanted, like cabbages, two feet by one and a half apart, or they may be sown in drills and cultivated precisely in the same way as turnips. The Kohl Rabi is considered a hardier bulb than the turnip, fully equal in its feeding qualities, quite as productive, and may be grown successfully on land that is not good enough for Swedes.

Mangel wurzels, carrots, &c., should be hoed and thinned out; red root or pigeon weed, yellow mustard, cockle and other troublesome weeds carefully pulled out of the wheat and other grain fields; potatos, Indian corn, &c., gone through with the light plough or cultivator and the hand hoe; the fallows attended to, and the manure drawn out to them; and all the other work of the season properly attended to, so that nothing shall be behind hand at the end of the month when the time for hay-making approaches.

PLEURO-PNEUMONIA.

This fatally contagious disease among horned Cattle has at length made its appearance on this side of the Atlantic, and has been very destructive in one or two

localities on the coasts of Massachusetts. In order to prevent, if possible, its spreading, a law has been passed authorising the civil authorities to order the immediate slaughter of suspected animals, the State making good to the owners the value of the stock. There is great risk of the disease, like most things of that nature, whether in the animal or vegetable kingdom, extending westward, so that we in Canada cannot help feeling personally anxious about the matter. It has been very troublesome for several years past in the eastern part of England, and serious losses have been sustained by many individuals. The diseased Cattle were imported from Holland, Denmark, &c. No specific cure has yet been discovered.

We take the following account of the history of the disease from the *Ohio Farmer*, taken from advanced sheets of the Ohio Agricultural Report for 1859, from the pen of Mr. Klippart, the corresponding Secretary:—

Pleuro-pneumonia is a contagious disease of cattle, which originates spontaneously among the cattle in the vast Russian steppes, more especially in the southern and eastern provinces of Russia. It disseminates itself very rapidly, by means of a virus, which infects all races, sexes, ages and conditions of cattle, but which infects neither man nor any other animal. For a period of upwards of fifteen hundred years, this disease has at times spread desolation beyond the steppes; more especially has it followed in the wake of war and destroyed entire herds, in the several European countries. The first account which we have of it, dates back to the fourth century; in this instance, it was undoubtedly carried westward by emigrants from the East, or Russian provinces. From Panonia, it swept westward through Moldavia, Gallicia, Moravia, Bohemia, into Belgium, on the northern route; and through Transylvania, Wallachia, Hungary, Sclavonia, Styria, Illyrica, into Austria aud Tyrol. On account of the great destruction of cattle, it was at that time called the "*Pest.*" During the wars of Charles the Great, in the Ninth Century, this plague broke out and destroyed almost all the cattle that grazed in the Imperial States. About the middle of the same century, it literally swept away all the cattle of France; after a lapse of twenty years, it again visited France with unabated fury, and afterwards visited the countries on the Rhine, and raged throughout Germany. Towards the middle of the tenth century, it was very disastrous in Austria and Italy. From this last period, until the thirteenth century, there are no accessible records of its operations. During the first half of the thirteenth century it broke out in Hungary, and spread over nearly all the western States of Europe, but was especially destructive in Austria, Moravia and Elsaz. Towards the close of the sixteenth century, it was very wide spread, and unusually destructive in Italy and Germany. Its most remarkable advent, however, was during the eighteenth century; during this period it visited every portion of Europe, not excepting isolated England, and some portions twice or thrice; destroying in the aggregate, many millions of cattle, and is known in veterinary history as the period of the great cattle plague. In 1723, it proved more destructive in Brandenberg than elsewhere; and indeed throughout the entire continuance of the seven year's war, it proved itself an inseparable companion, and followed irresistibly in the footsteps of the army, causing great destruction of cattle in Pomerania, Saxony, Prussia and Livonia. From 1793 until 1815, it followed the armies in all the wars which France waged against the eastern European States, and in which Russian steppean cattle accompanied the armies for the purpose of being slaughtered. During this period, Littlehausen, Prussia, Chur- and Silesia suffered most, more especially in 1806, by the retreat of the French army, and the pursuit of the "allied powers," being followed by the cattle plague, from the steppean cattle which followed the army, and which communicated the contagion so that it was disseminated far and wide. Even as late as 1815 and 1816, it was not fully extirpated in portions of France and Germany. But from this period, until the declaration of the Russian-Turkish war in 1828, it was not heard of outside the Russian steppes. Immediately after the first battle of the war, the plague raged among the cattle with all its unabated mortality, and swept with terrible destructiveness throughout Austria proper, Gallicia and Silesia, but was checked on the Prussian borders by rigid municipal regulations, which were enforced on the most non-intercourse principle. Since the wars of 1814 and 1815, Prussia has escaped with now and then an isolated case, on the Russian Polish borders, which was introduced

by smuggling, but which was vanquished on the spot; so that it did not become general even in limited districts. During the portion of the present century which has already elapsed, the plague has been almost unabated in the steppes, to which it was confined by the countries bordering, on their adopting a rigid police system; and, it leaped this boundary only at the outbreak of wars, which necessitated the movement of armies. According to official accounts pleuro-pneumonia raged in forty-seven governments or departments of Russia, during the years 1844 to 1847, during which period upwards of a million and a half of cattle fell victims to it. In the years 1848 and 1849, it was by no means abated, but spread over Podolia, Volhynia, Bessarabia and Poland.

The Austrian dominions have suffered nine invasions of this destroyer, during the present century, and have suffered immense losses of cattle in consequence. The last two eruptions were in 1848 and 1853: the first of these continued until 1852, and gave the country a respite of one year only, until the Crimean war broke out, and the plague followed as a faithful companion, and devastated the country until the year 1856. During the latter period, Gallicia and Hungary, together with the military borders of Lower Austria, Moravia and Austrian Silesia, were visited with terrible destructiveness, and lost over a million of cattle.

AGRICULTURAL STATISTICS.

We make the following extracts from the Report of the Bureau of Agriculture, to which we alluded in our last number. Circulars of Agricultural Queries were sent to the Presidents of all Societies in both Provinces, and to many others. One hundred and two replies were received—72 from Upper Canada, and 30 from Lower Canada.

WHEAT.

"In analizing the seventy-two Returns received from Upper Canada, it appears

There are six Counties out of the 24 from which there is only one Return each; four from which there are only two Returns each; and five from which there are three Returns each: five Counties give four Returns each, and the rest have five or six—none exceeding the latter number. The highest is Carleton. Winter Wheat, 28¼ bushels to the acre; Spring Wheat, 22¾. The next highest is Northumberland;—27½ for Winter, and 19 for Spring Wheat. The next is Simcoe;—26¼ for Winter, 22⅔ for Spring. York gives, Winter Wheat, 27, and Spring Wheat, 20; but there is only one Return. Bruce gives, Winter Wheat, 25, Spring Wheat, 20. Leeds,—Winter Wheat, 25, Spring Wheat, 16½. Peel gives, 24⅔ Winter Wheat, 18⅔ Spring Wheat. Ontario gives, Winter Wheat, 22¼, Spring Wheat 23½. The total average is 21 bushels for Winter Wheat, and 18⅔ for Spring Wheat; and this appears reliable. There is great reason for rejoicing that the averages are so far beyond those of last year, which were for Winter Wheat, 11¼ bushels, and for Spring Wheat, 13½; being an improvement on last year's growth of about 76 per cent. on one, and about 46 per cent. on the other, and being about 16 per cent. above the general average of the last twenty years.

As to damage done to the Wheat crop by midge and rust, forty-two report that no mischief was done to Winter Wheat in 1859. Eighteen report that very slight damage was done; eight report serious and extensive injury—say from 10 to 25 per cent.; and three report a loss of 50 per cent,—one from the County of Welland; one from Haldimand; and one from Wentworth. Six Returns further report serious injury by heavy frost on the 5th June.

The remedy for the midge universally given, is to sow early kinds of Winter Wheat, very early, and the Fife Spring Wheat, either very early, or not till after the 20th May. The Soules, White, Flint, and Blue Stem, and also the White Kentucky, are mentioned in very many of the Returns as the earliest and best Winter Wheat, and the Fife as the best Spring Wheat. Good draining and good cultivation are much recommended; and, in fact, good drainage is the grand essential of successful husbandry. Without it there cannot be early and luxuriant crops, except on very peculiar soils. In five or six cases, however, it occurred that the earliest wheat was the most injured by the June frost; but this frost was exceptional, never having occurred in Canada, except once before, since wheat began to be cultivated in Upper Canada, and but for this early frost, this wheat would have been of the very finest.

The Hon. Mr. French, in what is said to be one of the completest essays ever published on the subject of drainage, thus sums up the loss to undrained land which the excessive evaporation from its surface entails upon it:

1st. The drained land comes into condition for working a week or ten days earlier in the Spring than other lands.

2nd. The growth of the crops is quickened all through the summer by an increase of several degrees in the temperature of the soil. And,

3rdly. The injurious effects of frost are kept off several days later in the Fall.

In Lower Canada there is very little progress in this important branch of agriculture. Only seven report that a little drainage is done; all the rest report that none is done. Its value is evidently very little understood. If premiums were offered by Societies for the greatest extent of underdraining, the benefit would soon be manifest, and the present averages of grain crops greatly increased.

As to the proportion which Winter Wheat bears to Spring Wheat, 31 Returns state that the growth of Spring Wheat greatly predominates, being double that of Winter Wheat; the whole crop consisting of two-thirds of Spring to one-third of Winter Wheat. Thirteen state that the growth of both is about equal,—and fifteen state that the growth of Winter Wheat predominates over that of Spring, to the extent of one-third. From comparicg the returns it may be estimated that the number of acres under Wheat, is about one-third of Winter Wheat and two-thirds of Spring. Five years ago there was not one acre of Spring Wheat in Upper Canada for every ten of Winter Wheat. This certainly is an extraordinary change, brought about chiefly by the fearful invasions of the Wheat Midge, but will probably be temporary, and will continue only until draining and high cultivation shall have rendered the insect innocuous here, as it has been already rendered in Great Britain by what is called "high farming." The general aaerage of the Wheat crop in Great Britain is 28 bushels: (three-quarters and a half,) and the average weight 60 lbs per bushel. There seems no good reason why the average of Upper Canada should not in a few years equal that of Great Britain, by attention to drainage and high cultivation. Soil and climate are naturally well adapted for the growth of Wheat.

Of the 30 Returns received from Lower Canada, there are only four which report any winter wheat grown, and they state the average to be 18, 15, 20, 15,—equal to 17 bushels per acre. The County of Laval gives 18; County of Ottawa 15—and two from Pontiac give 20 and 15.

Twenty-three report the growth of some Spring Wheat—one from Terrebonne states the average to be about 20 bushels; one from Pontiac, and one from Megantic give 18; one from Grantham 17; one from Leeds 16½; three from Pontiac and Lotbiniere 15; one from Megantic 14; one from Ottawa 13; three from Bellechasse, Bagot and Lotbiniere give 11; one from Chicoutimi and Montmagne give 11; and six others state the average to be 9 bushels. The total average of Spring Wheat in Lower Canada, is 13 bushels per acre.

Ten of the returns state that very considerable injury has been done to Spring Wheat by the wheat midge:—Chicoutimi, Iberville, Bagot, Joliette, and Timiscouata, report from 25 to 50 per cent.; seventeen report that the damage done has been very little, if any, this year. The remedy suggested is, to sow very early or very late, and by one to run a rope steeped with Turpentine over the heads of the Wheat when in blossom. The Black Sea Wheat is the most recommended. The Fife is mentioned only by five parties in Lower Canada, although universally esteemed in Upper Canada.

OATS.

The total average of Oats in *Upper Canada*, is 34½ bushels per acre.

Two	Counties	report	50	bushels per acre.
Three	"	"	45	" "
Nineteen	"	"	40	" "
Thirteen	"	"	35	" "
Twenty-two		"	30	" "
Seven	"	"	25	" "
Two	"	"	20	" "

Simcoe, Ontario, Kent, and Wentworth, give the highest returns, Lanark and Renfew, the lowest; the common Black Oats are the most recommended; the average of 1858 was 32 bushels per acre, so that there is an improvement of about 8 per cent. on the crop of last year.

Considering that the statute bushel of Oats here is only 34 lb., and that the average of Great Britain is 60 bushels per acre, of 40 lb. per bushel, there is great room for improvement in the cultivation of this crop. There does not appear anything in the soil or climate of Upper Canada detrimental to the growth of this grain, and it may be inferred that the difficulty arises from inferior cultivation. The importation of new varieties of seed has taken place to a considerable extent, and it is to be hoped that the improvement will continue progressing, till we approximate somewhat nearer to British averages.

In Lower Canada the Returns show an average of 22½ bushels per acre. Megantic returns 30, and Pontiac 26 bushels.

BARLEY.

The average return of this grain in Upper Canada is 27½ bushels per acre; sixteen returns report but little grown—there are 56 returns. In Lower Canada the average is 23 bushels per acre; Chicoutimi, Bellechasse, Megantic, Nicolet, and Pontiac, give 30 bushels. The growth of this species of grain is very much on the increase in Lower Canada; there are only 3 Reports out of the 30 which state that very little is grown. Winter Barley is coming into use, and promises to be a prolific and valuable cereal. Some idea may be formed of the extensive growth of Barley, when it is stated that in the City of Albany, about 600,000 bushels were imported from Lower Canada in the Fall of 1859. Some very fine crops of Winter Barley are reported to the Bureau. A Mr. Haven, near St. Catharines, states that he grew 150 bushels on 3 acres. A Mr. McCarty, near Niagara, reaped a field on the 12th July. He says:—"I sow 3 bushels per acre, and my yield has been in fallow 60 bushels—and on Corn-land 40 bushels per acre. The Corn-land was equally good as the fallow; what made the difference in the yield in my opinion was, that the latter was sown on the 20th September, and the former on the 1st of that month." He adds:—"I believe under any circumstances it will yield double the quantity of Spring Barley; it is ripe on the 1st July before the Midge can strike it—we sell it at $1 per bushel.

This correspondent also remarks:—"It ought to be widely known, that Barley flour used as Buckwheat-flour, is far superior to it; it is delicate in flavor, and most wholesome."

Winter Barley, it is stated, is chiefly grown in mild climates where the Winters are short, and the Spring dry, such as the South of France, Italy and Spain, or in countries where deep snow covers the ground all Winter, and goes off rapidly in Spring, such as Russia, Poland, and parts of North America.

That the introduction of this new species of grain will be a valuable acquisition to Canada, is further shown by a report of Mr. Charles Chapman, of Ottawa, who has sent a sample to this Department.

[A communication from Mr. Chapman, on the subject of Winter Barley, similar in subtance to that published in the *Agriculturist* some time ago, is here inserted.]

RYE.

Of rye the average return in *Upper Canada* is 18 bushels per acre, but 50 of the returns report that there is very little or none grown.

In Lower Canada this grain is represented in 22 returns (out of the 30 received,) to be cultivated for bread. The average is 13 bushels per acre, and cannot be a remunerating crop. Lotbiniere and Megantic return the largest averages; the former 20, and the latter 18 bushels per acre. Chicoutimi returns 17.

INDIAN CORN.

Only 37 Returns from Upper Canada have furnished reports of this crop, of which the average is 30 and 24-60 per acre. 28 report very little grown, and 10 report the crop much injured by the early frost of June, which, although very injurious to the crop of 1859, may be esteemed altogether exceptional, as a similar frost has not occurred since the year 1836.

In Lower Canada Indian Corn, Peas and Buckwheat seem to be very little cultivated, and with very partial success.

PEAS.

Sixty-four Returns from Upper Canada have reported on this crop. The average is 23½ bushels per acre—only six report injury by bug, and 58 are unanimous in declaring that no injury has been done by this insect, which, for many years previous to 1858 had been very destructive, but has this year nearly disappeared.

BUCKWHEAT.

The Returns of this crop in Upper Canada are so deficient that little can be said about it. There are only 26 Returns with regard to it, and these show an average of 18 bushels per acre. The extent of land under this crop is very small.

POTATOES.

With regard to this crop there is a very great improvement in Upper Canada. The rot appears to prevail still, but to a very limited extent. The average of last year was 125 bushels per acre—that of this year is 176. 45 of the Returns state positively that there was no rot this year; 14 state that from 25 to 50 per cent. of the crop was lost, and 12 state that the loss was light, say from 5 to 10 per cent. None can account for it, but many attribute it to an insect, the ravages of which are always the worst in damp soil and situations, and in wet seasons. The "Irish Cup" seems to be the most generally recommended as the freest from rot, although stated by one to be the worst. New land is much recommended as a preventive, and dry situations.

In Lower Canada also the yield of this

crop appears to be very much on the increase. The average of 26 returns is 175 bushels per acre, being about 50 per cent. greater than last year. The rot is stated not to be so prevalent as usual. 11 report serious injury, and nineteen report that very little damage was done this year. It may be safely inferred, or at all events reasonably hoped, that the rot is leaving Canada.

HAY.

This crop was exceedingly deficient in Upper Canada; 3 only out of 72 return the produce at 2 tons per acre; 26 return 1 ton and a half per acre; 15 return 1 ton per acre, and 28 return from $\frac{1}{4}$ to $\frac{3}{4}$ ton. 48 use Gypsum or Plaster as top-dressing, and 18 use barn-yard manure occasionally.

In Lower Canada this crop was very far superior to that of the Upper Province.

The averages are nearly 2 tons per acre, and there has been a considerable export of it to the Upper Province. In this article of produce Lower Canada generally surpasses Upper Canada.

TURNIPS.

Sixty-nine of the returns from Upper Canada report, that the cultivation of Turnip is on the increase, and that they are grown very successfully; one reports 1,000 bushels; one 900; six report 800; 15 report from 500 to 700 bushels, and 18 report from 300 to 500. This shows a great increase on former years, and it is a very favorable sign, as there cannot be successful cultivation of grain crops unless there be also that of green crops. In fact the extensive and proper culture of green crops is the very foundation of good farming. Last year the returns of green crops cultivated were so inconsiderable, that they were not included in the Report of this Department, but it is now becoming an important item in the production of the country.

In Lower Canada nineteen of the returns state that this crop is on the increase; sixteen have reported the growth of from 400 to 1000 bushels; one reports 1000 bushels; one 700; six 600; and two 500.

FLAX AND HEMP.

Forty Returns from Upper Canada state that neither of these is grown; 22 state that very little Flax is grown, and that chiefly for the seed; one states that the growth of Flax is on the increase, and one from the County of Lincoln states that hemp has been tried there this year. It may be satisfactory, however, to know that the transactions of the Board of Agriculture for December, report that the Messrs. Perine had 400 acres under this crop in the Township of Woolwich, in the County of Waterloo, this last season, (1859,) and that it proved very remunerative, producing 12 bushels per acre of flax-seed weighing 56 lbs. per bushel, and 325 lbs. of fibre per acre, which Messrs. Perine consider a pretty fair yield, for dew-rotting; they prepare the fibre for cloth, thread, and twine, but complain that they have no market in Canada West. This latter evil will soon be remedied, for if farmers will only produce the article of good quality, moveable scutching mills will soon be forthcoming. There is a great demand for flax in Great Britain at remunerating prices. At the present time flax is selling at from 6d. to 8½d., sterling, per lb. in the North of Ireland, and the acre of flax is worth from £12 to £20 sterling.

MANURE MAKING AND STOCK-FEEDING.

It may be safely and positively given as a rule that ordinary farm-yard manure ought to be charged with no more fermentative or organic matter, as the droppings of animals, than will decompose it by a slow process of fermentation. If active fermentation be produced by heavily charging it with animal ejecta, and then lightly heaping it for the circulation of free air, a wasteful heat will take place by the union of oxygen with the carbon present, and a compound of gases will be thrown off in the form of carbonic acid, ammonia, and whatever volatile matters may happen to have been in combination with the non fermentative carbon of the matured gum-like straw, or with the actively fermentative refuse of the green food the animals ate. If straw manure be required in a perfectly decomposed form for a winter or an early spring dressing, this must be managed, to be done economically, by "taking time by the forelock," by getting the straw sufficiently trodden down and charged early enough in the autumn to admit of the required result without unnecessary loss by dissipation. Some loss of gases will no doubt take place by fermenting straw at a moderate degree of heat, but the gain by transformation and decomposition till it can be readily fed on by the plants it is to be applied to, far surpasses that loss.

If the green crops, that straw manure is generally applied to, collect for returning to the soil the atmospheric elements that have been taken up by, and carried off in corn crops, why, it is evidently requisite

that these green crops should have the greatest possible benefit to be imparted to them by the use of straw as a fertiliser. An observation, made I believe by Mr. Hudson, to the effect that he "found his farm-yard manure greatly improved by exposing it the sun and air of summer for a fortnight," is suggestive on this poiut although his theory, that "something was absorbed by it from the air during the exposure," is certainly erroneous. It would lose a certain proportion of its carbonaceous compounds by being charged with water by dews and rain, if any fell, and evaporation by the sun's heat. This loss would vary according as the elements of the straw had been liberated by fermentation in the heap. Therefore, although the above observation would undoubtedly be correct as regards the fact, the theory of it would be untenable. Its "improvement" would simply arise from a much greater proportion of the straw being reduced to a state of solubility, or to a condition for the first crop of plants to take it up; and as green crops are the agents used to restore soils, partially decomposed straw manure would be "improved," or made more profitable, if so treated. Exposure to dews, or "dew-rotting," is a rapid natural process of decomposing vegetable textures, particularly when they have been subjected to slight fermentation. These considerations prove two things: the necessity of gummy insoluble textures, as straw, being decomposed by a slow process of fermentation; and the great importance it is to have this perfectly done for rapid-growing restorative crops.

The only considerations that require observance in regard to pits and covered sheds is to have enough dry straw at hand to prevent any of the droppings from running away through the walls and floors of them, and from dripping on the roads to the field when they are being emptied. If this be done in the winter, the generally economical method of a light and frequent dressing should be especially practised in this case, for a large proportion of the fertilizing elements are in a soluble form, and as few soils are of a condition to suddenly unite with and fix a large amount of these elements, subsequent heavy rains may wash them into drains or deep into the subsoil beyond the reach of domestic plants. I have seen water highly coloured running off clay lands after a heavy winter dressing, and this too when it has been ploughed in.

Much inconvenience and loss often arise from too little care being taken to keep straw dry. If it be necessary to thresh out as much as can be trodden down in two or three months, it should be stacked evenly—it is no more trouble—and roughly thatched. I often see as much as one-half, at the least, of the value of the ejecta from a row of bullocks running to waste out of the sink-hole from the place they are tied up in. There are brick reservoirs, it is true, and liquid carts with troughs and all complete, but a man or boy cannot always be there to sweep the places down and then empty them into the water-tight cart, that they may not soak into the sandy soil beneath. It may be said, "asphalte the floor and cistern that they may be impervious." But something better than that can be said on behalf of plain farming; there ought to be no call for a liquid manure-cart at all. Liquid manure (if there be any) from a farm-yard ought not to be worth carriage. If straw be kept dry, and the liquid of the yard cannot be soaked up, then the yards are at fault. If, too, the straw to each yarded animal be so small in quantity that an ordinary rain washes much of value from the yards, then the system is bad. Either too many bullocks are kept in proportion to sheep, or winter feeding is practised where it would be better to expend money in cake and corn, in the spring and summer on Tares, Rye, Clover, Rape, and early Turnip lands.

Where it is possible to arrange the straw of a farm so that that which grew on one determined soil shall be applied to another determined soil—for example, from heavy to light, and *vice versa*, or from chalk to soil deficient in that earth—by all means let this be done. This is not always practicable where a farm is situate on a table land of uniform soil; but the crust of this country is so variable that a vast amount of good may be produced by forecasting and incurring the trifling expense that this change would require. When a purchase of straw is about to be made this view should not be forgotten. If it be good to apply clay, chalk, sand, moor, and so on, according to circumstances, it must be good to vary the great fertiliser straw in a similar way. The atmospheric constituents of straw are much alike; but the inorganic or earthy are quite different where grown on different determined soils. Analytical chemists have favoured us with numerous results of what 100 or 1000 parts of Wheat and Barley straw have yielded, and they have told us that as this is so, Wheat or Barley straw requires so and so. But this is more suggestive than conclusive. It would be folly to accept the theory that because one sample of vegetation or animal substance possessed certain constituents in

given proportions, the same sorts must contain the same classes and proportions of elements. Animals would thrive equally well on a variety of kinds of food. Nature admits of this. So it is with corn crops, and especially the straw of them. As great a collection of fertilisers in the shape of straw will take place on a soil containing no earth but fine clay as will grow on a soil principally made up of silicates. A dressing of one earth on another earth does more good than by merely altering its physical character. This is proved by the facts that an application of chalk will be entirely taken up in the course of time by the crops that follow: also by the exhaustion of clay when applied to moor or fen soils, and so on. Therefore as the chemical character of soils is changed by their physical opposites, and as straw contains some of the inorganic elements of the soils it grew on, what can be more worthy of attention than the point in question, how these elements are so easily made soluble, and when sundered are available for again entering into reproduction? This point chanced to be the last in this part of our subject, but it is not the least. *W. G.—London Gardener's Chronicle.*

BLACK HAWK HORSES.

We copy the following, in reference to this breed of horses, now so much in favor in the adjoining States, from the Transactions of the State of Maine Agricultural Society:—

"For the satisfaction of those in Maine who are in possession of Black Hawk horses, we copy the following letters, first published in the Boston *Cultivator*. The first is an extract from a letter of Benjamin Thurston, of Lowell, who was for several years the owner of Black Hawk, under whose training he was brought on the trotting course, and by whom he was sold to Mr. Hill, in 1844. Under date of Oct. 7th, 1847, he says:

"'It gives me much pleasure to answer your letter, as I feel a great interest in anything which relates to Black Hawk. I will answer your questions in the order in which they are asked.

"'Black Hawk was raised by Mr. Twombly, of Greenland, (formerly of Durham,) N. H. 2nd. He was begotten by Sherman Morgan, owned by Mr. Bellows at that time. 3rd. His dam was represented to be a half-blood English mare, raised in New Brunswick. She was finely proportioned, and of great speed. Although never trained, I think she could trot a mile in less than three minutes.'

"This letter, it will be noticed, was written nearly eight years ago. To show the estimation in which Black Hawk and his progeny were then held by Mr. Thurston, it will not be out of place to introduce another extract from the same letter, as follows:

"'I bought Black Hawk when he was four years old; for six years used him as my family horse, and think him, without exception, the finest horse I ever knew. I have owned a number of horses for the last twenty-five years—varying from ten to thirty-five at a time—and have also been in the habit of purchasing the finest I could find for sale; but if the choicest qualities of the best horses I ever owned were combined, I do not think they would produce an animal to surpass Black Hawk. In the first place, he is the best roadster I ever drew rein over. I have frequently driven him fifty miles in half a day, and once drove him sixty-three miles in seven hours and fifteen minutes. He did it with perfect ease, and indeed I never saw him appear fatigued. At the time I owned him, I believe he could have trotted one hundred miles in ten hours, or sixteen miles in one hour, or one mile in two minutes and forty seconds. In the second place, he has the best disposition of any horse I ever knew, and is perfectly safe for a lady to ride or drive. Thirdly, he will draw as kindly as any team-horse. His stock is unequalled. There are in this part of the country some ten or twelve of his get, five or six years old. These can trot a mile in from two minutes thirty-five seconds, and sell at prices ranging from $500 to $1000. They are finely proportioned, good sized, nice gaited, hardy compact animals.'

"We next introduce an extract from a letter written by John Bellows of Lancaster, N. H., (owner of horse Sherman Morgan,) to David Hill of Bridport, Vt. It comprises an interesting description of the sire of Black Hawk. Its date is March 24th, 1848:—

"'In answer to inquiries relative to the origin of your famous horse Black Hawk, I state that he was foaled at Durham, N. H., the property of Ezekiel Twombly, now of Greenland, N. H. His dam was a good sized, fast trotting, black mare, resembling in appearance, the Messenger stock of horse.

His sire, old Sherman Morgan, was truly a prodigy among horses. He was fourteen and a half hands high; his greatest weight while owned by me, 925 lbs.; of chestnut colour; well strung in cord; muscular; in-action exhibiting wonderful strength and agility; though apparently mettlesome, yet easy of control; sagacious and patient in trouble, and of matchless endurance. He had a lively countenance, with an amiableness of expression, captivating, in effect beyond any horse I have ever seen. He was foaled at Lyndon, Vt., in 1815, the property of James Sherman Esq., and died at my stable, in January, in 1835. But for this animal, Morgan horses would never had the celebrity they enjoy. His dam was bought by Sherman Morgan of Dr. Fiske of Providence, R. I., and was said to have been imported. She was of good size and fine appearance; of a chestnut colour; elegant in action, and a speedy trotter. His (Sherman Morgan's) sire was the Goss (or Justin) Morgan, brought to Randolph, Vt., by Col. Morgan.' "

Correspondence.

ORILLIA, May 18th, 1860.

To the Editors of the Agriculturist:

SIR,—In accordance with old country custom, I beg to enclose small dried specimens of a grass (apparently indigenous) hoping that you will be able to give its name.

It is perennial, grows from two to four feet high, according to soil, &c.; is propagated either by seed or by dividing the stools; comes in exactly along with the red clover, and unlike timothy, produces an excellent aftermath.

I remain, yours &c.,
J. CUPPAGE.

P.S.—If the Alsike Clover comes from Sweden, why is it not more hardy? I sowed a patch last summer for experiment in light dry soil. When the snow went off it looked beautiful—appeared to have grown during winter—but the frost afterwards killed every plant—not one left.
J. C.

[The specimen of grass sent us by our correspondent is the Rough Cock's Foot, or, as it is commonly called in America, Orchard Grass. We are not aware that it is indigenous to Canada, though we have seen it growing in situations which would lead to the supposition that it is, but it is said to have been originally introduced into England from this continent. This grass resembles a little in appearance at first sight the common June grass, or spear grass, so generally found in old meadows, but is a much rougher, stronger plant. The spikelets of the seed head are distinctly arranged in dense, globular, one sided tufts, supported upon three or four, or more separate branches from the centre stem, and the plant has received its name from the fancied resemblance which this branched form gives the spike to the foot of a cock. It grows to the height of two feet or more, and the root is perennial, fibrous, tufted. The stem erect, round, finely ribbed, or striated, and rough, bearing five or six leaves with rough striated sheaths. Leaves nearly of an equal width the entire length except near the points, flat, acute, spreading, rough on both surfaces, harsh, of a dull green, the edges minutely toothed. This is a valuable grass, and is much relished by all kinds of live stock, especially sheep. It should be eaten off before it is allowed to grow harsh and coarse. The Orchard Grass has been highly commended by Judge Buell, in the Albany *Cultivator*. The seed can be obtained of Mr. Fleming, seedsman, of this city, at about two dollars per bushel. It is very light, weighing only ten or twelve pounds per bushel, and about two bushels are required to the acre. We would strongly recommend the sowing of some portion of Cock's-Foot, at the proper season, along with other grasses.

In regard to Alsike Clover, our information heretofore has led us to believe it equally hardy with any other forage plant. During the present season many fields of red clover, on strong, undrained lands have been killed by the heaving out of the roots, by the action of the frost in spring, after the disappearance of the snow, in the same way in which wheat is killed, the long tap roots being strewn upon the ground as if pulled out by hand. It is probable that Alsike Clover might, in similar situations,

suffer from the same cause, but we have not before heard of it being killed by direct action of the frost on light, dry soils.

The following remarks on the Rough Cock's-foot Grass (*Dactylis Glomerata,*) are from Parnell's Grasses of Britain:

The Cock's-Foot Grass, one of the commonest of all grasses, is found in orchards, woods, hedges, and waste places, and is said to have been originally introduced from Virginia by the Society of Arts. It grows most luxuriantly in damp and shady situations. As an agricultural grass, Mr. Sinclair states, that it is deserving of particular notice, that the herbage, when suffered to grow rank or old for want of sufficient stocking, contains nearly one-half less nourishment than that which is of recent growth. Hence this grass is of more value for pasture than for hay; yet, even for the latter purpose, it will be found superior to rye-grass (*Lolium perenne*), and many other grasses. To reap the full benefit of its merits as a pasture grass, it should be kept closely cropped either by cattle or the scythe. Oxen, sheep, and horses eat this grass readily, but dislike it when allowed to grow too coarse. It succeeds best when the subsoil is porous and not stagnant, so that the fibrous root may penetrate to a considerable depth, which causes the plant to be productive in an extraordinary degree, and remains permanent. But when the surface soil is thin, incumbent on tenacious clay, or when the subsoil is retentive of superfluous moisture, this grass succeeds imperfectly, and the slender hold that the roots have in such soil renders the plant liable to be drawn out of the ground by the cattle when grazing. The pastures most celebrated for fattening stock in Devonshire, Lincolnshire, and in the vale of Aylesbury, are partly formed of this grass. It is less impoverishing to the soil than the *rye-grass.* A combination of three parts *cock's-foot*, and one part composed of hard fescue grass, meadow fescue, rough stalked meadow grass, cat's tail or timothy, and rye grass, will secure the most productive and nutritive pasture in alternation with grain crops.

Dactylis glomerata is common throughout Scotland, England, Ireland, Norway, Sweden, Denmark, Germany, France, Spain, Portugal, Northern Africa, Russia, and the United States. It is not found in Lapland, or further north than latitude 63. Its limit of altitude seems to be about 1000 feet above the sea.

Flowers from June till August.

THE DOG NUISANCE.

To the Editors of the Agriculturist.

Mr. Editor,—As the dog nuisance has become intolerable in Otonabee, as well as other places, and as we have presented two petitions to our Council without effect: the first to fine bitches going at large at certain seasons; the other to tax all dogs $1, and bitches $2, our Reeve thinking it illegal to *fine* or *tax bitches distinct* from *dogs*, will you or some of our friends learned in the law, give us reliable advice upon the subject, or will any person devise a better remedy than the one we have suggested, to alleviate the evil.

Trusting that the subject is of sufficient importance to obtain a place in your columns, and a reply, I am Sir,

Yours, faithfully,

Henry Bawbell.

Otonabee, May, 1860.

[We are not aware of the existence of any law to prevent a greater tax being imposed upon bitches running at large than upon dogs. The losses and injury incurred through dogs in killing sheep and other ways is so great, that if people will not be restrained by their good sense, or regard for their neighbors, from keeping such numbers of useless and mischievous animals certainly the Municipalities ought to have the power, if they have not already, to compel individuals to give due consideration to the public safety in this respect.]

BONE DUST.

To the Editors of the Agriculturist.

Thurlow, May 9th, 1860.

Dear Sir,—Would you be kind enough to inform me if there is a Bone Factory in Toronto, if so how much per bushel for fine dust: I want it for turnips.

Yours, &c.

William Woods.

[Mr. Peter R. Lamb, of this city, has a mill for grinding bones for manure. The price of the coarse or inch bones has been 40 cents per bushel, of the half-inch bones, 50 cents, and of the finely ground or bone dust, 60 cents per bushel.]

METCALFE FARMER'S CLUB.—THE CULTURE OF FRUIT.

To the Editors of the Agriculturist.

METCALFE, May 10th, 1860.

The paper herewith enclosed, was read before the "Metcalfe Farmers' Club," on the 7th inst. by the Secretary. If you think any of the hints given, are of importance to the fruit growers of Canada, and can find room for it in the *Agriculturist*, please publish it, and oblige the members of the Club.

Yours, &c.
THOMAS MOYLE,
Secretary.

"In the culture of Fruit Trees there are four things absolutely necessary to insure success. First, the fencing of the Orchard in a strong and substantial manner before planting. This is of the greatest importance, for a few breachy cattle getting into an orchard will, in an hour, destroy all the trees within their reach, and it will be the work of years to replace them.

Secondly, The proper Preparation of the Land for Planting. If this is not naturally dry, it should be made so by thorough draining. In level lands and clay soils a drain at least three feet deep should be made between each row of trees, before or immediately after planting. It may be as well to mention that I speak of Apple Trees here, because I consider them the principal fruit, but all kinds of fruit trees require the same treatment. Apple Trees planted in wet land become in two or three years, miserable, stunted, moss-covered things, and no treatment, however judicious it may be, can afterwards restore them. The ground should also be in a good state of cultivation, well manured, and planted with some hoe crop, at least one year before the trees are set out, and the same system of cropping should be continued three or four years after. All writers on the subject agree in asserting that grain crops are very injurious to young orchards. In planting, the trees should be set about 30 feet apart in the rows: great care is necessary to place the roots in a proper direction in the holes, to lay them out straight, and to pack some rich mellow soil around them. If in a dry time, a pail of water may be thrown in when the excavation is two-thirds filled up, but that is not done except in late planting in Spring. They should then be staked and mulched, that is, straw or chips placed around the tree for a distance of three feet, to keep the land mellow and moist until the tree begins to grow well.

Thirdly. The selection of the Trees is a very important matter, as the future prosperity of the orchard will in a great measure depend on this point. If the trees are thrifty and free from disease, they soon come into bearing, and repay the labour and care bestowed upon them. On the other hand, if diseased or stunted, they dwindle on a few years and then die, leaving you to begin your labour again. No trees then should be planted, or even bought, if diseased. This can be easily ascertained by the general appearance of the tree, the bark being rough and shrivelled, the limbs short, crooked and mossy, and covered with the Scaly Aphis or Bark Louse. Such trees will never pay for the trouble of planting. The kinds to be selected must chiefly depend on the fancy of the owner, bearing in mind however, that all kinds will not flourish alike in the region and climate we live in. The following, however, I have seen growing in this neighbourhood and can recommend them as being well suited to the country, good bearers and excellent fruit. For summer apples, Early Harvest, Sweet Bough, Red Astrachan. For Autumn, Drop D'Or or Golden Drop, Fall Pippin, Porter, Rambo, Fameuse, Maiden's Blush, Gravenstein and Pound Pippin. For Winter, Baldwin, Bellefleur, Esopus Spitzenburg, Northern Spy, Pomme Grise, Rhode Island Greening, Swaar and Roxbury Russet. The most of the apples here spoken of combine the qualities of good cookers and good dessert fruit, and are strongly recommended by Mr. Downing and Mr. Barry as being well suited to the latitude of Western New York, and experience proves that they also suit this part of Canada. I should also advise the planting of from six to twelve Pear Trees, according to the size of the orchard, which will require the same treatment as the Apple. The kinds might be the Virgalieu, Bartlett, Beurre Diel, Flemish Beauty, Steven's Genesee, and Winter Nelis, representing Summer, Autumn and Winter Pears. The finer kinds of Plums and Cherries do not answer here, and whether the fault is in the soil or the climate, I cannot say. At present the opinion seems to be that it is the climate, the winters being too cold.

Fourthly. Pruning requires nice judgment. In the first place, to form the head of the young tree properly, the running shoot should be cut off about six feet high to form the lateral branches; and those again should be carefully pruned, to keep them equal in their growth for two or three

years, checking the strongest and encouraging the weakest, until the head of the tree is well formed. After that the main object will be to prevent the wood from getting too thick; and a great deal may be done at this early stage by rubbing off the tender shoots in spring by the hand, instead of the knife. But when the wood harders the knife must be used, and a saw may be sometimes necessary. When this is used, the cuts should always be made smooth with a knife. Pruning may be done at any time while the wood is growing, as the wounds heal quicker at that time. It is better to prune a little every year than to allow the wood to get thick, and to prune heavy once in two three years. As the orchard grows larger, the pruning must be strictly attended to, and it will be necessary to manure it every three or four years with some well rotted compost, digging it well in around the trees, at the same time taking care not to injure the roots. This is the way I have managed my orchard, and in the sixth year after setting out they grew from three to five bushels of apples to a tree.

Diseases of Fruit Trees.—The disease I suffer most from is what is called Frozen Sap, or Fire Blight. As soon as it strikes a tree, it immediately turns black, and will soon die if the part affected is not cut away. Writers differ greatly as to the cause of it. Some think the sap being frozen after some warm day in winter, is the cause. Others think the heat of the sun is, and others again, think it an insect. But whatever be the cause, the only remedy is to cut away the part affected into the sound wood. There are three kinds of lice that infest fruit trees: the Aphis or Plant Louse, the Woolly Aphis, and the Scaly Aphis. The first fastens on to young buds and shoots, sucking the sap, and preventing their growth. A sprinkling of soap suds will banish them. The second kind fastens on any part of a limb, and will soon girdle it if not removed; a whitewash of lime and soap suds will destroy them. The third kind, the Bark Louse, is the worst here. They fasten on a young tree and will soon kill it if not removed. Their nests are exactly the colour of the bark, and there are from thirty to fifty eggs in each nest. The cure is to scrub the limbs they infest with strong ley about the end of May or beginning of June. Caterpillars are also more or less destructive to the young leaves and fruit. They require sharp watching: a sudden shake of the tree in the morning or evening will throw them down and you can then kill them. In short every individual tree in your orchard, like your farm stock, will require watchful care and strict attention, for which they will soon repay you. But if neglected, you will find them a constant source of irritation and trouble.

INQUIRIES AND ANSWERS.

To the Editors of the Agriculturist.

I see in the *Country Gentleman* and other agricultural papers, there is a column of "Inquiries and Answers," "Queries," &c., wherein much useful information is elicited. Would it not be well to have one in the *Agriculturist?*

H. B.

[We should be happy to give such a column in the *Agriculturist.* The chief difficulty we have to contend with is, that no one sends us the inquiries, except a stray one or two now and then.]

ON RINGING PIGS.

To the Editors of the Agriculturist.

Mr. Editor,—I think you will agree with me, that it looks unseemly, and shows want of management, to see a farmer's homestead and fields turned up in the spring by his pigs, like a fallow field, when so little labour and cost will remedy the evil. If we had to employ the blacksmith to make the rings, and insert them as we used to do in England, it would be some excuse for neglecting the business, but as the remedy is ready, cheap and efficient, I give it for the benefit of those who are no better acquainted with the subject than I was a few years ago.

If you have not the misfortune to be a bachelor, your wife or daughters will have an old bonnet or two thrown away, with the wire in them: take this wire, run it through the flame of a candle to take off the covering, use a little sandpaper to brighten it, cut it into lengths of 4 or 5 inches according to the size of your pigs, file or grind one end sharp, and they are fit for use. If you buy your wire, get stout bonnet wire, or rather annealed wire; then take a rope the size of a bed-cord, make a large noose by tying a slip knot at one end of it, put the noose in the pig's mouth above his tusks, draw it tight, let your assistant haul him near to a post or rail about three feet high, bestride his neck,

take a wire, and with a pair of pliers push it quickly up through his snout, about half an inch from the centre and half an inch deep, or more if a big pig, bring the two ends to meet, and twist them together close up to the snout, putting a brad awl or nail between the wires to prevent twisting the flesh, then double the twisted wire up into as round a lump as you can. Do the same on each side. When done, pull at your slip knot and let him free, taking care that the rope does not catch the wires and jerk them out, and they will be there at Christmas if rightly done.

Otonabee, May, 1860. Yours truly, SWINEHERD.

Agricultural.

HUNGARIAN GRASS.

Wm. Richards, of Richmond, Massachusetts, writing in the *New England Farmer*, says :—

I sowed four bushels of Hungarian grass seed upon ten acres of land, from the 6th to the 16th days of June. In 1858 I got between two and three tons per acre from second quality land, and four tons from good land, made very fine with plow and cultivator, without manure ; it yielded grain, or seed, amounting to more than one-fourth of the whole weight, and of the richest kind.

In 1859, in common with some of my neighbors, I was cut short in anticipated results, while others were quite satisfied with its yield. Constant rains prevented my sowing it at the proper time, which is, here in New England, in my opinion, from the 25th of May to the first day of June.

On the third of July occurred that ever memorable shower, to the inhabitants of this vicinity, which washed down our mountain sides a sufficient quantity of gravel and rock to make monuments to the event, which will last for ages to come. The same washed out and buried up about half of my seed, after which the cold season and early frosts cut short the rest to a very great extent, leaving me a chance to gather in about ten tons, which proved to be richly worth what it cost me. The hay possesses a sweetness which gives it a preference in the estimation of hay-eaters, and a richness that makes a greater flow of milk from cows fed upon it, and butter of a superior quality. Like corn, it will do best in a warm season ; but it will do better in a cold season, like the last, than corn, by supplying the farmer with coarse grain, if sowed at the proper time, with anything like careful management. It should not be sown in New England till the ground gets warm. It will decay before it germinates in cold earth, and if it barely germinates in such earth, and remains so a few days, it will receive a sickly hue, and becomes only capable of a dwarfish existence. I am particular on this point, that those who have a great desire to get all sowing done very early, had better not engage much in its cultivation. I have raised it two seasons, have had as good success in stocking after it, both years, as I ever had with wheat, or any thing else. Very many to whom I sold seed last spring have testified to its good qualities as surpassing clover and herds-grass, and the pleasure they feel in having it in their possession.

One man in the neighborhood said to me recently, "I like it well, my oxen are always ready for it." I replied, "Are not your oxen always ready for any good hay?" He said, "No. Last fall when I was hauling stone with them, till they were weary, they would lie down on other good hay, to rest, before they would eat it, when at the same time they would be ready for the Hungarian."

Similar expressions are common from those who have proved its worth by feeding it to all kinds of stock. I will further suggest for the benefit of any about to commence the cultivation of it, that it seems to demand one day more of drying than other hay.

I am much inclined to the opinion, that it will be found economy to cut it at the time when the seed is mostly ripe, which happens when the blades are about half turned yellow. In this way I have a good crop of grain, next, if not equal, in value, pound for pound, to corn, and a crop of hay, when well cured, that will compare well with other good hay.

This grass never grows too large and stiff, like millet, but each seed throws up from the root, in any thing like fair ground, from one to five or ten stalks, and sometimes. in rich land, sowed thin, from ten to fifty of about equal size, each covered with its own beautiful blades, and when ripe, a heavy head.

HOW TO GROW LARGE POTATOES.

Messrs. Editors :—In the year 1856 I first began to experiment with potatoes, and the result of that trial I wish to make known to your readers, together with some

hints on growing potatoes of a uniformly large size.

Upon a loamy soil, eight rows of potatoes were planted, the rows being ten rods long; furrowed out three and one-half feet apart, and all manured with green stable manure. They were treated in the following manner, and the potatoes, when dug, were weighed with the following result:—

2 rows manured as above,		172 lbs.
2 rows do., with addition of	ashes,	182 "
2 rows " "	lime,	192 "
2 rows " "	plaster,	191 "

The quantity of lime, plaster and ashes put into the hill was in all cases about a common sized handful. In addition to the above, I planted eight other rows, manured in the hill with stable manure (same as above) and no other dressing. This last experiment was in regard to preparing the seed, each in different ways, with this result:—

1. Two rows planted with seed eyes, had large tops, small potatoes, and yielded 162 lbs. 2. Two rows planted with but ends, had few tops, large potatoes, and yielded 270 lbs. 3. Two rows planted with potatoes cut directly in two in the middle (lengthwise) had tops of medium size, potatoes average quality, and yielded 179 lbs. 4. Two rows planted with whole potatoes, had good tops, fair sized tubers, and the yield was 230 lbs.

By looking at the weight of the rows of potatoes mentioned above, it will be seen that the heaviest yield was that obtained from those planted with but ends, being forty pounds greater than those where the seed was whole when planted. The result of this single experiment led me to think upon the manner of preparing seed to obtain the heaviest return of the best sized potatoes, and since then I have followed this plan.

When preparing my potatoes for seed, the eye or seed end is cut off and used for the hogs or sheep; at any rate, *it is not planted.* What remains of the potato is cut up in pieces, each containing from three to five eyes, and there are planted one piece in a hill, three feet apart one way, and eighteen inches the other. And let me say in conclusion of this part of my article, if your readers would grow potatoes of a large size, let the seed ends be thrown aside when planting.

It has been my practice to plant peas with potatoes for many years, and I have found them of great advantage to the potatoes, besides obtaining a good crop of peas with but little labor. I put from three to five peas in each hill; they come up about the same time as the potatoes, are supported through the season by the tops of them, and when ripe are pulled and put in small piles to dry. I think potatoes are less liable to rot if peas are planted with them. It is a method which I earnestly recommend to all farmers—*Boston Cultivator.*

INDIAN CORN.

Of this crop, little need be said. It will stand bad management as well as any other crop, but it is exceedingly grateful for good cultivation and heavy manuring. It requires a warm, dry, rich soil. The motto of the corn-planter should be "good culture." In our experiments with various manures on Indian corn, gypsum or plaster proved the most profitable. Ashes had little effect, though this might not be the case on other coils. Ammonia is what we need, but this can not be purchased sufficiently cheap to render its use in the majority of cases profitable. The cheapest source at present, with the exception of home manures, is Peruvian guano. If the corn is planted on a clover sod, it may be well to let the clover grow till just before planting, and then turn it under and plant immediately.

In our own experiments, the plaster was applied in the hill with the seed, at the time of planting, a little over a bushel per acre. This year, we shall try the effect of a larger quantity. The general mode is to scatter it round the plants when three or four inches high.

We have little faith in the various recommendations of soaking seed corn in solutions of ammonia, chloride of lime, copperas, etc. Soaking old, dry seeds in a solution of chloride of lime is said to facilitate the softening of the husk, and thus render germination easier. This is propably true; but that the small quantity of any ingredient that seed can absorb can materially help its after growth, is inconsistent with all our ideas of the nourishment and growth of plants. In the majority of experiments that have been made on this subject, it is quite probable that the result would have been just as good if the seed had been simply soaked in water alone for twenty-four or forty-eight hours. Generally, this even is unnecessary.—*Genesee Farmer.*

Sowing Corn for Fodder.—There are very few farmers who do not run short of good succulent pasture by the last of August or early in autumn. To supply this defi-

ciency, an acre or two of ground sown with corn for soiling at that season would be almost invaluable. Every farmer knows how eagerly cattle devour the entire plant of Indian corn in its green state; and land in good condition will produce heavy crops of it. That it affords an excellent fall feed, for dairy purposes, there is no doubt; and it is clearly ascertained that it may, on some farms at least, be profitably grown for winter fodder. Much of course, depends on the character of the farm, and something I suppose may depend upon the season; but in case of the prospect being dark at the end of June for fall and winter food, I see no reason why the farmer could not profitably devote an acre or two, where the land is fit for the purpose, to the sowing of corn for fodder, to be fed out green in early autumn, or to be cured for winter, as the case may seem to require.

For a few years past, I have observed repeated recommendations in the agricultural papers to sow corn for soiling purposes, and I would thus early call the attention of farmers to this subject, and advise them to look at this matter.

Sowing in drills is much the preferable mode, as it requires only about one-half or two-thirds the amount of seed needed for broadcast sowing; besides, drills, by admitting the cultivator, leave the ground clean and mellow, and this greatly adds to the growth of the crop: they admit of easier harvesting, and yield about one-third more fodder per acre.

The ground should be prepared as for any other crop. Furrow, or mark off the ground three feet apart. Strew the seed in the furrows at the rate of forty or fifty grains to a foot. It should not be sown thinner than this, as the crop will be smaller.

The greatest difficulty with this crop is curing it properly before stacking. The leaves may become perfectly dry while a large quantity of water remains in the stalks, which causes fermentation and the complete loss of the fodder when placed in large stacks. I have found it much the best way to place it in long rows in an upright position under cover.

Curing is the only difficulty with this crop, and this may be obviated in a measure when understood. Ten to twelve tons of green fodder and five or six of dry may be had from a good acre. FRYE, Jr.—*Country Gentleman.*

SOAKING OF SEEDS.—One of the best methods of preparation of seeds for an early start is to soak them in diluted liquid manure. Hen dung is much recommended for this purpose. Sometimes soaked seeds do not come forward, or rot in the ground; but frequently it is the case that the seeds are not attended to, but are allowed to heat, or sometimes to get dry, before they are sown. Another point is to have for small seeds, the soil in good warm friable condition; if the seeds are soaked and the surface of the soil is warm, and the soil itself is pressed down close to the seed by rolling, or the hoe, when the sowing is done, it will make a material difference in the time which they will take to sprout; and besides this the manure with which their outer coat is saturated, protects them from the attacks of worms and insects.

AGE OF SHEEP FOR MUTTON.—A late English writer says: "A sheep to be in high order for the palate of the epicure, should not be killed earlier than five years old, at which age the mutton will be rich and succulent, of a dark color, and full of the richest gravy—whereas, if only two years old, it is flabby, pale and flavorless."

Horticultural.

GARDEN MEMORANDA FOR JUNE.

The principal sowing seasons for general crops may be considered as past, but there are many kinds of seed which may be sown this month; and the gardener should ascertain the success of his former plantings, in order to make up any deficiencies from failures, before the season be too far advanced. As the warm weather progresses the gardener should be on the alert, in order to conquer the various kinds of insects. Burn damp litter, stubble, leaves, weeds, &c., near fruit trees, and sow ashes over the ground. Attend to plantations of Cabbages, Cauliflowers, &c., hoe them frequently, and draw earth to their stems; look out for and destroy grub worms, catterpillars, and other insects: thin out the early plantings of Beets, Carrots, Parsnips, Salsify, &c., and destroy weeds, to prevent their seeding the ground. Plant and sow such kinds of seed as were omitted last mouth. Watering will now frequently be required for newly planted vegetables, both at the time of transplanting, and occasion-

ally afterward in dry weather, until the roots are established in the soil. Likewise, seed-beds, recently sown, till the young plants become vigorous. Weeding must be very diligently attended to, both by hand and hoe; for as weeds grow luxuriantly, it is necessary to eradicate them before they spread too far, as, by neglect, they will not only impede the growth, but eventually smother the plants.

Celery.—The following remarks, from Bridgeman's Young Gardener's Assistant, on the cultivation of this vegetable, so much esteemed as a salad, are just in season:—

"The early sown plants should be pricked out in a nursery bed of cool rich earth, as soon as they are two or three inches high, there to remain about a month, after which they will be fit to transplant into the trenches.

Choose for this purpose a piece of rich ground, in an open exposure; mark out the trenches by line, ten or twelve inches wide, and allow the space of three feet between them, which will be sufficient for the early plantations. Dig each trench a moderate spade deep, laying the dug-out earth equally on each side, between the trenches; put three inches deep of very rotten dung in the bottom of each trench, then pare the sides, and dig the dung and parings with an inch or two of the loose mould at the bottom, incorporating all well together, and put in the plants.

Previous to planting, trim the plants, by cutting off the long straggling leaves, and also the ends of the roots. Let them be planted with a dibble, in single rows, along the middle of each trench, five or six inches between plant and plant; as soon as they are planted, give them a plentiful watering, and let them be shaded until they strike root and begin to grow.

The main crops may be planted in the same way, but in trenches four feet distant from each other, and an inch or two farther from plant to plant; or in beds made in the following manner, which, for the ease of preserving the plants in winter, will be found extremely convenient, besides a greater quantity can be raised on a given piece of ground.

Lay out the ground into beds four feet wide, with alleys between, three feet; dig the beds a spade deep, throwing the earth on the alleys: when done, lay four or five inches of good, well-rotted dung all over the bottom of the beds, dig and incorporate it with loose earth, and cover the whole with an inch or two of earth from the alleys; plant four rows in each bed at equal distances, and from six to eight inches apart in the rows; after which give them a plentiful watering, and shade them.

The plants must be hoed occasionally, until grown of sufficient size for earthing, which is done with the assistance of boards, by laying them along the rows, to support the leaves while you are putting in the earth from the alleys, and removing them as you progress in the business.

The earthing should never be done when the plants are wet, as this is apt to make the Celery rusty, but should be performed gradually in fine weather as the plants progress in growth, repeating the earthing every two weeks; at which time care should be taken to gather up all the leaves neatly, and not to bury the hearts of the plants. When they are grown two feet high, and well blanched, they are fit for the table.

As Celery will grow three or four feet high in one season, it will be necessary to delay the planting of that which is intended for winter use until the latter end of July, but the trences should always be got ready soon enough to avoid a serious drought, which often delays the planting till too late in the season. The blanching of Celery for winter use may be delayed until October."

The Vine.—We are glad to see that a considerable amount of attention is now being attracted to the cultivation of the grape in this Province. The following remarks from P. Barry's "Fruit Garden," on the culture, pruning, and training hardy grape vines, will be found to contain a good deal of valuable and interesting information:—

"The management of our native grapes is exceedingly simple. Immense crops of Catawba and Isabella, and especially the latter, are raised throughout the country in the entire absence of any systematic mode of training or pruning. A single vine in a neighbor's garden, carried to the flat roof of an outbuilding, and allowed to ramble there at pleasure, without any care but a very imperfect pruning every spring, produces annually many bushels of fruit. But the quality is, of course, greatly inferior to that produced on well-pruned, trained, and dressed vines. A grape vine neatly trained

on a trellis, with its luxuriant ample foilage, and rich pendulous clusters of fruit, is really one of the most interesting objects in a fruit garden, and, at the same time, one of the most profitable; for the shade and ornament alone that it produces, are a sufficient recompense for its culture.

In planting a grape vine the first point is to prepare a border for the roots.

This must, in the first place, be perfectly dry. If the soil or situation be wet or damp, it must be drained thoroughly, so that no stagnant moisture can exist in it. In the next place it must be deep—three feet is a good depth; and it must not be less than two where abundant and fine crops are expected. The mode of preparation is, to dig out the natural soil to the required depth, and the length and width necessary. For a single vine, the border should be eight or ten feet long and four wide.

When the excavation is made, if the soil be stiff or damp, a few inches, or a foot deep, of small stones, brick, rubbish, etc., may be laid on the bottom as a sort of drainage. On the top of this deposit the compost for the border. This may consist of two parts of good, fresh, friable loam, one of old, well-rotted manure, and one of ashes, shells, broken bones, etc., all completely mixed with one another. The top of the border, when finished, should be at least a foot higher than the surface of the ground, so that it may still remain higher after settling. Having the border thus prepared, the next point is the *trellis*. The form of this will depend on the situation it is to occupy and the mode of training to be adopted. The following description has been designed for a wall. The principal bars or outside frame-work are inch and a half boards, three inches wide, nailed together at the angles.

It is intended for one vine, and may be the height of the wall that it is intended to occupy. The vertical or upright bars are three feet apart and the cross ones six feet; between them are rods of stout wire. The first or lowest cross bar may be two feet from the ground. It is fastened to the wall by iron hooks or brackets. The best and simplest mode of training a vine on such a trellis as this, is to produce two main branches or arms to be trained in a horizontal manner on the first cross bar. From these two arms, permanent, upright canes are trained, one to each of the upright bars of the trellis. These upright canes produce on their sides a succession of bearing shoots from year to year, being pruned after what is called the "spur" system.

Planting the Vine.—As in planting any other tree, the roots should be carefully spread out, and the fine earth worked well in amongst them. Its position should be exactly in the centre of the trellis it is to be trained on.

Pruning.—It must first be observed that the grape vine bears its fruit on shoots of the current year, produced from eyes on the previous year's wood. It is important to understand this, because it shows the necessity of keeping up a supply of young wood wherever we desire fruit to be produced.

To illustrate the pruning, we will suppose the plant to be one or two years old, as ordinarily sent out from the nursery. It may have only one shoot, or it may have several. However this may be, all are pruned off but the strongest, and it is cut back to within two eyes of its base. These two eyes will produce shoots, and when they have made a growth of two or three inches, the weaker one is rubbed off and the strong one trained up. It is allowed to grow on till September, when the bud is pinched to mature and strengthen it. Any side shoots that appear during the summer, should be pinched off, as well as any suckers that may appear about the roots.

Second Year.—If the shoot of last year made a strong growth of ten or twelve feet, it may be now cut back to three eyes, and two canes be trained up; but if it made only a weak growth, it should again be cut back to two eyes, and one shoot only trained up. Side shoots and suckers are pinched off during the summer; and in September these canes are stopped as before, and no fruit is allowed.

Third Year.—We have now two strong canes with which we commence the frame-work of the vine. Each of these is cut back at the winter pruning to within two or three feet of its base, and laid in, and fastened to the lower horizontal bar of the trellis. The bud on the end of each, will produce a shoot to continue the prolongment in a horizontal direction, and a bud on the upper side of each will produce a shoot to be trained to one of the upright bars—the first one on its division, or half of its trellis; all others are rubbed off, or the buds cut out. Thus each of these arms produces two shoots—an upright and a horizontal one. During the summer, these shoots are carefully tied in as required, and side shoots and suckers pinched off when they appear. They are also topped off in September, as before.

Fourth Year.—Each of last year's

shoots is cut back to within three feet of its base. It may be necessary to cut the horizontal ones closer than the upright ones, to obtain another strong upright shoot. The two upright canes already established, will produce a shoot from their tops, to continue their extension upwards, and the horizontal ones, as before, produce a shoot at the point to be carried outwards, and one on the top to be trained up to one of the upright bars. This year, several fruit shoots will be produced, on each of which, one or two bunches of grapes may be ripened. In this way the vine goes on adding every season two new upright canes, and two or three feet in length to the previous ones, until the whole trellis is covered; when the management will consist in pruning the spurs every winter to about three eyes. Each fruit branch should only be allowed to produce two bunches of fruit, and the top should be pinched at the second eye, or joint above the fruit, in order to arrest the production of useless wood, and turn the sap to the benefit of the fruit.

By such a system as this the trellis is covered in every part with bearing wood, the fruit and the foliage are all exposed fully to the sun, an uniformity of vigor is maintained between the different parts, and the appearance is beautiful. A trellis may be covered with a vine by other modes requiring less labor perhaps, and less time, but none will be found more beneficial or satisfactory in the end.

In the management of a grape vine, as in the management of other trees, summer pruning is of great consequence. If a vine is left to itself all summer, or from one winter pruning to another, it will be found that a vast quantity of useless wood has been produced, and that to the serious detriment of the bearing shoots for the following year. Every two weeks the growing vine should be visited, shoots tied in, strong ones checked, superfluous ones rubbed off, and every part kept in its proper place, and in a proper degree of vigor. In certain cases, where the mode of training above described cannot be conveniently adopted, two or three poles, twelve to fifteen feet high, may be sunk in the ground, with a space of three or four feet between them at the bottom, and fastened together at the top, forming a cone, around which the permanent canes may be trained in a spiral manner.

This produces a very beautiful effect, and occupies comparatively little space, but the grapes will not all ripen so well, nor will the training be so easy as on the flat surface of a trellis.

Very tasteful arbors may also be made over some of the walks, by training the vine over the woodwork, in the same manner as on the trellis.

This is a very common practice and offers many advantages. Ingenious persons who care well for their garden, as well in its appearance as its productions, will conceive other plans still better adapted to their particular wants and taste than any of these; but the main point must always be kept in view, that is, to provide for the foliage and the fruit, a free open exposure to the sun. Any system that does not secure this, will fail to a greater or less extent.

The Isabella grape succeeds well even as far north as Maine, by laying it down in winter and covering it with mats, straw, boughs of evergreens, &c."

J. F.

Gum-shellac in Pruning Trees, and in Cutting off Young Trees in the Nursery.—Young trees which were budded the past season will require to be cut off above the bud this spring. The plan adopted by many nurserymen is to cut the tree an inch or half an inch above the bud, and after the latter has begun to grow, to trim the trunk down to the point of connection with a sharp knife. As the young shoot is exceedingly tender, it is in great danger of being injured by this operation. The necessity for this laborious and objectionable method results from the danger of the buds being killed by the drying of the trunk down from the place at which it is cut. We have practiced for several years, and on many thousands of trees, a plan which saves entirely the second trimming, and which has been fully successful. We trim the tree down close to the bud at the first operation, and paint the surface of the cut with a thick solution of gum-shellac in alcohol. As the gum is not soluble in water it is not washed off by the rains, and it preserves the tree alive to the very end, so that the wound heals in the most perfect manner, making a smoother joint than can be produced in any other way. This preparation may also be used with advantage for coating the wounds made in pruning choice trees.

Profits of Fruit.—The New-England Farmer states that the Northern Spy apple now sells for fifty to seventy-five cents a dozen at retail in the Boston market. This remark of course applies to those only of fine quality and well kept. Fruit that is better than the average will always bring not only a high price, but will also com

mand a ready sale. The Northern Spy is one of those fruits that will always show the effect of good treatment, and those are the sorts that afford the highest profits under skillful hands. It has been objected to this apple that it is hard to convey to market, on account of its liability to bruise. This is the very quality that gives it its high value in selling. A half a day's labor in extra pains in packing, will repay the cost of a week's labor in putting up. It is the difference in the results of common and skillful management, in raising, gathering, ripening and packing that gives such great prices to the finest pears. Farmers! if you wish to make money by marketing fruit, pursue such a course as will enable you to exhibit specimens, finer in quality and more splendid in appearance than those around you, and you can command almost whatever you choose.—*Country Gentleman.*

Effects of Artificial Light on Vegetation.—In answer to an inquiry on this subject, a correspondent of the London *Builder* states:—"I planted vegetables in a place where daylight could not penetrate, over which I suspended a paraffine oil lamp, with a reflector to throw the light upon the plants. They have grown up a beautiful dark green. I have also lighted a greenhouse with lamps every night, and find it not only increases vegetation, but gives a beautiful deep tinge to the plants."

Interesting to Pomologists.—Mr. Dubreil, the eminent French pomologist, states that he has produced much larger fruits than usual by moistening the surface of the green fruit with a solution of sulphate of iron, 24 grains to a quart of water. This was done when the fruit first set, when it was half, and when it was three-quarters grown, taking care never to do it when the sun was shining. It has long been well known that this solution greatly stimulated absorption.

Increase of Strawberry Plants.—The rapid increase from a strawberry plant in the course of a few years, under favorable circumstances, can be hardly comprehended by one who has never observed this increase. There is a difference in varieties. In rich soils, some will occasionally produce a hundred in a single year, but calling the number but thirty, the yield would be 900 at the end of the second year; 27,000 at the end of the third; 810,000 at the end of the fourth; 24,300,000 at the end of the fifth; 727,000,000 at the end of the sixth, &c. Cultivators who do not wish to pay high prices per hundred for new sorts, may soon obtain all they need by increase.

Trees.—Mr. George Leslie, of the Toronto Nurseries, has lately sent a handsome donation in the shape of 150 trees of different sorts to the Agricultural Society of Kingston, for the purpose of adorning and beautifying the grounds around the Crystal Palace, belonging to the Association there. Such a present is alike honorable to the giver and must be very gratifying to the recipients.

Veterinary.

Horse Breeding in Britain.—A writer in *Bell's Life* complains of the number of "weeds" that are being used to breed from. He says:

"We may be believed when we assert that notwithstanding the liberal sums given with the laudable intention of stimulating and improving the breed of horses throughout the country, that the present administration of those sums under the existing *regime* upon the turf, is merely a lavish expenditure, to defeat the very object which those grants were originally instituted to promote. To commence upon a proper basis, and one that will insure successful results, there must be a sweeping reform in existing racing arrangements, and one that will tend to the total annihilation of "weeds." Our general horses are fast losing stamina; the same class from which the multitude of coach horses were some years ago drawn, has been that which furnished our troopers. Since the rail superseded the road, breeders have had less temptation to be careful in the selection of sires than formerly existed, and the 'right sort' is not now so procurable as in those days. Coach horses with questionable legs and feet, and any malformation of form, were seldom purchased, and became a drug in the market. Coaching is now defunct, and with its dissolution vanished one of the best incentives that could exist to the promulgation of the doctrine, that soundness, size, and action were essential to success in breeding general horses. This being unquestionably the case, it appears strange that the wisdom or the rulers of a great people, would not, ere now, have hit upon some happy expedient to keep up that system in horse breeding which is most essential to the welfare and honor of our country, and the glory of our arms.

Development of the Teeth of Cattle, and Mode of Ascertaing their Age by the Same.—Persons acquainted with the dentition of "neat stock," can form a

pretty accurate idea of age, from the period of birth up to that of adult life; and this method of ascertaining the age of an animal is, probably, more correct than that which applies to *horns;* for, by means of a rasp applied to the rings of the horns, any amount of imposition may be practiced, when it is well known that the same liberties are not to be taken with the teeth, without the chances of discovery. It is possible that there may be some slight variations from the following rules, in the development of the teeth, yet such variations will not embrace a period of over a month or six weeks, which at maturity does not amount to much, and may be considered as purely accidental—out of the ordinary course of nature. The front teeth or temporary incisors are found in the lower jaw; there are eight of them, all prominent at the age of four weeks. The calf is usually born with three temporary grinders or molars; the fourth appears six months after birth; the fifth appears at the age of fifteen months; and the sixth is to be seen at the age of two and a half years; now, the animal has a "full mouth" of temporary teeth, numbering thirty-two. At this period a very remarkable change in the teeth is about to occur; the temporary ones, having answered the purposes for which they were intended, are to be removed in the following order, so as to give place to others which shall correspond to the increase in the size of the jaw bones, and prove as durable as other bones of the body. At the age of two years the central or middle incisors (lower jaw) are shed and replaced by two permanent ones. At the age of three, the two incisors known as the inner middle undergo the same process.—At the age of four, the outer middle are shed, and replaced by permanent teeth. At the age of five, the corner incisors are also transformed in the same manner, and the animal has a full set (eight) of permanent front teeth. The first and second permanent molars known as grinders, appear in the upper and lower jaws on each side, at the age of two years; and at intervals of one year, the other four are successively cut; so that at the age of six years the animal has a full mouth of permanent grinders.—*American Stock Journal.*

Domestic.

Keeping Hams.—Noticing an enquiry in the *Rural* for a recipe for keeping hams, I send you one that I will warrant, by using the ingredients prescribed, will keep them any reasonable length of time—that is for one or two years—sound, sweet and good. When the hams are sufficiently dried after killing, pack them away in dry salt, in a box or barrel, taking care to fill all the open places among the hams, until they are completely covered.—Matthew C. Hyland, *Lebanon, Madison Co., N. Y.*

Rusks.—Take a quart of night's milk, put in a teacup of yeast, a little salt thickened with flour: let stand until morning. Boil six middling large potatoes, and mix in the sponge; let rise again. Take half a pound of butter and mix in the flour, and half a pound of sugar, if you like, and the whites of three eggs beaten to a stiff froth. Pour your sponge in and then the egg, grate in some nutmeg, mix middling stiff, and let rise: then butter your hands, and mould in small cakes, and let rise again. Bake in a quick oven half an hour. This is consumption bread.

Bread Pudding.—Boil the milk, and pour over the bread, and cover it up until it cools; put in three well-beaten eggs, one teaspoonful of butter, one of ground cinnamon, sweeten to the taste, and bake an hour and a half. This is a good way to use up hard bread and crusts.

Rice Pudding.—To one quart of milk, take one teacup of rice, one of raisins, a teaspoonful of salt. Sweeten to the taste, and season with nutmeg. Bake two hours in a slow oven.

Cleaning Bonnets.—Place the bonnet in a tub, and pour on boiling water; scrub each one carefully with brush and soap, then rinse in hot water; after which put two tablespoonfuls of oxalic acid in a basin, and pour on a quart of boiling water—the stains will instantly disappear—then rinse in clear water, and hang in the sun to dry.

Economy in Bread-Making.—To make yeast bread, mix up your sponge in the evening, in the morning put your kettle on, put in some milk, let it come to a boil, thicken it with corn meal, as soon as it is cool enough mix it in your sponge with a little flour; when light, mould it out—don't mix it very stiff, put plenty of hand and shoulder on, that's what makes good bread, kneading it a good deal.

Take Care of Your Furs.—To preserve them properly, and in nice condition, they should be packed away in a box, or place by themselves, where they will not be likely to be overhauled, or tumbled, in looking for other things. A cedar box is the best, the furs then requiring no other

preventive against moths; but if this cannot be obtained, a flat box, or band box will answer, into which put the furs, nicely folded in an old linen cloth, and plentifully sprinkled with pepper, or pepper pods, which is much better and more effectual than camphor. This method will keep them in good order any length of time.

Boiling Potatoes.—A correspondent of the *Horticulturist*, states that the great secret of boiling potatoes right, is to select them of about equal size, place them in a flat vessel, so that all will be on the bottom, fill in water enough only to cover one-half to two-thirds of each potato and boil them thus. He argues that a potato should never be covered with water when it is cooked by the boiling process. All potatoes cooked under water are waxy, only those that are on the top, or are half way out of the water, present that mealy quality so desirable in the potato.

How to preserve Ladies' Furs.—Fine furs should be kept in a cold place. An experienced dealer will tell, the moment he puts his hand on a piece of fur, if it has been lying in a warm, dry atmosphere; it renders the fur harsh, dry and shabby, entirely destroying the rich, smooth softness which it will have if kept in a cold room.

When furs have been laid away for some months they acquire an old squeezed appearance which may be remedied in a great measure as follows:—Warm some new bran or fine sawdust in a pan, but do not let it burn; then rub it thoroughly into the fur with the hand. Repeat this two or three times; then shake and brush the fur until free from dust.

Miscellaneous.

Millionaires.—There lately died, at Bombay, a Parsee merchant, Sir Jamsetjee Jejeebhoy, the first native of Hindostan who was elevated to the rank of Baronet, an hereditary title, yet which does not belong to the British peerage, as many of our contemporaries think. His will has been proved in the Supreme Court of Bombay, and the whole of his property, real and personal, was sworn under eighty-five lacs of rupees—£8,500,000—which amounts to $42,500,000 in American money. This is perhaps, the largest fortune left by any British subject, not a nobleman, for the Marquis of Westminster, who owns one-half of the "West End of London," besides vast landed estates in the provinces, has an income of £800,000 per annum, which, taken at thirty years' purchase, might be capitalized at £240,000,000, which is equivalent to $1.200,000,000 of money. The late Dwarkanauth Tagore, of Calcutta, who died of a broken heart some twelve years ago, because his fortune had dwindled down, in the commercial panic of 1847, to the amount of ten million of dollars, was worth three times as much at one time, and commenced the world with only a few rupees. There are several merchants and bankers in London who are respectively worth from one to four millions sterling. In Manchester, in the spring of 1850, six local bankers dined together at the Albion Hotel, on a particular day, and were said to represent between them £12,000,000, equal to $60,000,000. These be the true money kings. With us, when a man is supposed to have $100,000 he immediately obtains the brevet-title Millionaire.—*Philadelphia Press.*

Distinguished Farmers gone.—The papers of last week brought us notice of the death of two men to whom the agriculturists of the country are indebted for many of the improvements which we enjoy.

One of them is that of David Thomas, of Union Springs, New York, and the other that of William Jarvis, sometimes called Consul Jarvis, of Wethersfield, Vermont.

David Thomas has long been a friend and improver of Agriculture and Horticulture, and his writings on these subjects have been the result of practical experience, aided by close observation and scientific research.—In the prime of his life he was appointed by Dewitt Clinton Chief Engineer on the Erie Canal during its construction; the western division of which, together with the Cayuga and Seneca Canals, were constructed under his charge.

At a later period he devoted himself assiduously to Agriculture and Horticulture, and particularly to fruit, in which pursuits he was very successful.

The Auburn *Advertiser*, in noticing his death, says that "a long life, devoted to scientific pursuits, and to all the high and christian obligations of society is closed, leaving a memory that his friends will most gratefully cherish."

William Jarvis is known among the farmers of Maine, and, indeed, those of the Union, as one of the first and most successful sheep-raisers and wool-growers, and for his enterprise, more than forty years ago, while American Consul at Cadiz, in Spain, of shipping the first cargoes of the celebrated Merinoes into this country. A few mer-

inoes had been previously introduced by Humphries and Livingston, if we mistake not, but Jarvis imported them by the shipload and acquired a fortune by the venture.

He had a large farm in Wethersfield, Vt., where he placed his flocks, from which the early Merino flocks of Maine were derived, and which, after all, have proved as profitable as any derived, more recently, from other sources.

He died on the 21st of last month, of paralysis, at the good old age of 89 years.—*Maine Farmer*, (*February*).

Qualification for a Rifleman; and a few hints to gentlemen of the Rifle Corps.—No man can feel more secret exultation than the well-trained pedestrian, confident in his speed, secure in his aim, and unbaffled in his science.

Steady, very steady, should his hand be, and at times wholly without a pulse.

Wary and circumspect, never going rashly to work. Patient under suspense, calm and unruffled in moments of intense interest; keeping all sensations under rigid control, not suffering them to interfere with his equanimity, or to disturb the coolness and self-possession which at such moments are more than ever necessary to his operations.

That he may preserve in all their due vigour and steadiness these indispensable qualities, he should add to them, in hours of leisure and refreshment, the further grace of temperance and moderation.

When the nerves are unsteady the rifle begins to betray a want of fixed purpose and resolution; it does, as it were, vibrate considerably. Under these circumstances the balls are apt to take any untoward direction, such as are wholly unlooked for. Very wanton courses they will sometimes take.

Ye, who eat long like your mothers, and fast like your fathers—ye, believe me, had much better remain at home with your household goods, and cultivate decisive apoplexies. Everybody will tell you how well you look; so let out your waistcoats and your waistbands most amply, my much-cherished friend; eat, drink, and be happy; or, if the god of war be warm within you, if so great, such an extinguishable ardour burns in your bosoms, arrange yourselves, I pray you, in an ample punt on a domestic fish-pond, with a rod, a line, and that admirable contrivance the float; but let not your obese fingers aspire to dally with a rifle.

Tell me, now, could you hit any given acre of land at fifty paces? I should rather think not. As for a rifle, then, have nothing to do with it, I beseech you, my good fellow, lest it should go off unadvisedly.

After all, we doubt not your resolution to attack the foe, for we have had a very high opinion of the courage of a well-fed man ever since we heard the story that Wilkes delighted to tell of Alderman Sawbridge, which for your satisfaction we will recount:—

The Alderman was induced to go hunting, a sport that was novel to him; and having some sort of indistinct idea that danger was connected with it, he went forth in the uniform of the City train-bands, to which he belonged. Being told that the hare was coming his way, he boldly laid his hand on the hilt of his sword, and replied, with perfect self-possession, 'Is he, sir? Let him come!'"—*Scrope's Art of Deer-stalking.*

Recipe for Improving Cider.—Let the new cider from sour apples (sound and selected fruit is to be preferred) ferment from one week to three weeks, as the weather is warm or cool. When it has attained to lively fermentation, add to each gallon, according to its acidity, from half a pound to two pounds of white crushed sugar, and let the whole ferment until it possesses precisely the taste which it is desired should be permanent.

In this condition pour out a quart of the cider, and add for each gallon, one quarter of an ounce of Sulphite of Lime, known as an article of manufacture under the name of *Anti-Chloride of Lime.* Stir the powder and cider until intimately mixed, and return the emulsion to the fermenting liquid. Agitate briskly and thoroughly for a few moments, and then let the cider settle. The fermentation will cease at once. When, after a few days, the cider has become clear, draw off and bottle carefully, or remove the sediment and return to the original vessel. If loosely corked, or kept in a barrel on draft, it will retain its taste as a still cider. If preserved in bottles carefully corked, which is better, it will become a sparkling cider, and may be kept indefinitely long.

The Ottawa Valley.—Mr A. J. Russell describes the immense extent and capabilities of the Ottawa Valley as follows:—"The Ottawa and its tributaries drain an area of about seventy-seven thousand square miles. Of this great region, about one-sixth part is surveyed and organized into townships and signiories; the operations of the lumberers extend over about one-sixth more, and the remaining two-thirds are comparatively unknown. Were the whole peopled in the same proporation to the area as Scot-

land, it would have eight millions of inhabitants; or taking the same rate as the State of New Hampshire, which is probably near what it should ultimately sustain, its population would be three millions. At present, the population of the valley of the Ottawa is about 200,000 souls. As no action can be taken on such cultivation, it may be better for the practical purpose of ascertaining how many settlers could be put into it, to take the present population of the settled parts of it as data for such proportion of the remainder as may be considered nearly equally fit for settlement. From Bytown upwards, the Valley of the Ottawa may be estimated at fifty-three thousand superficial square miles; and the tract between its head waters and Lake Huron, at nine thousand square miles. In 1852, the Counties of Carleton, Lanark and Renfrew, contained about 10,000 surveyed lots of land, of which 2500 were vacant lands of the Crown, and about 800 more were private unoccupied lands—shewing that one-third of the whole were waste lands, unfit for cultivation or otherwise unoccupied. The remaining two-thirds contained at the time a population a little over 70,000 souls—giving an average population to the whole of $22\frac{1}{2}$ souls to the squre mile, or in the proportion of 33 to the occupied lands; that is about $10\frac{1}{4}$ to each occupied two hundred acre lot."

Mason and Dixon's Line.—On the 4th of August, 1763, Thomas and Richard Penn, and Lord Baltimore, being together in London, agreed with Charles Mason and Jeremiah Dixon, two mathematicians or surveyors, to mark, run out, and fix the boundary line between Maryland on the one hand, and Delaware and Pennsylvania the other. Mason and Dixon landed in Philadelphia on the 15th of November following, and began their work at once. They adopted the peninsular lines, the radius and tangent point of the circular of their predecessors. They next ascertained the north-eastern corner of Maryland, and proceeded to run the dividing parallel of latitude. They pursued this parallel a distance of 23 miles, 18 chains and 21 links, from the place of the beginning at the N. E. corner of Maryland to the bottom of a valley on Dunkard creek, where an Indian war path crossed their route, and here on the 19th of November, 1767—92 years ago—their Indian escort told them it was the will of the Sioux Nation that the surveys should cease, and they terminated accordingly, leaving 36 miles, 6 chains and 50 links as the exact distance remaining to be run west to the south-west angle of Pennsylvania, not far from the Board Trei- Tunnel, on the Baltimore and Ohio Rael road. Dixon died at Durham, England, in 1777; Mason died in Pennsylvania, 1787.

Iron Ore.—The Brockville *Recorder* states that the mines of Messrs. Chaffey & Brothers will be most prolific of the richest ore, and that even now, if the works were in thorough working order to produce the quantity, a ready market for the ore could be obtained in the United States to the amount of from 30,000 to 40,000 tons per year, not to speak of the demand likely to arise for the ore in Great Britain, whence Messrs. Chaffey & Brothers have shipped this fall 200 tons in order to have it thoroughly tested with the best qualities of British ore. We are told that the ore from the Crosby mines can be landed at Erie for $3 per ton, while the ore from Lake Superior cannot be laid down at near that price. We anticipate, therefore, when the improvements intended at the South Crosby mines are carried out, that a large population will be added to the township of South Crosby, and, of course, a home market established for all articles raised by the farmers. Such are the benefits of mines and factories wherever such are put in active operation, and in the hands of the Messrs. Chaffey we know that everything will be done that energy and enterprise can accomplish.

An Open Eye.—The whole book of Job seems to have been chiefly written and placed in the inspired volume to show the value of natural history, and its power on the human heart. I cannot pass by it without pointing out the evidences of the beauty of the country that Job inhabited. Observe, first, it was an arable country. "The oxen were plowing, and the asses were feeding beside them." It was a pastoral country; his substance, besides camels and asses, was 7000 sheep. It was a mountain country, fed by streams descending from them. "My brethren have dealt deceitfully as a brook, and as the stream of brooks they pass away; which are brackish by reason of the ice, and wherein the snow is hid: What time they wax warm they vanish: when it is hot they are consumed out of their place." Again, "If I wash myself with snow-water, and make my hands never so clean." Again, "Drought and heat consume the snow-water." It was a rocky country, with forests and verdure rooted in the rocks. "His branch shooteth forth in the garden; his roots are wrapped about the heap and seeth the place of stones." Again, "Thou shalt be in league

with the stones of the field." It was a place visited, like the valleys of Switzerland, by convulsions and falls of mountains. "Surely the mountains falling cometh to nought, and the rock is removed out of his place." "The waters wear the stones; Thou washest away the things which grow out of the dust of the earth." "He removeth the mountains and they know not; He overturneth them in His anger.,' He putteth forth His hand upon the rock; He overturneth the mountains by the roots; He cutteth out rivers among the rocks·" I have not time to go further into this; but you see Job's country was full of pleasant brooks and rivers, rushing among the rocks, and all other sweet and noble elements of landscape The magnificent allusions to natural scenery throughout the book are therefore calculated to touch the heart to the end of time.—*John Ruskin.*

New Ship Canal in Canada.—Our northern neighbors are not only distinguished for great and bold projects, but also for successfully carrying them out. The public works of Canada, in proportion to the number of inhabitants in the provinces, are, by far the greatest on our continent. The ship canal which unites Lake Erie and Ontario is a work without a rival; the great bridge over the St. Lawrence, at Montreal, is the most stupendous work of the kind in the world; and the Grand Trunk Railway, extending from Quebec to Lake Huron, has no peer in any land. In addition to these great works a new one is proposed for uniting Lake Huron, by a ship canal, with the Ottawa river, thence to Montreal, down the St. Lawrence. Such a canal would carry off all the shipping from the upper lakes connecting the great North-west, as it would obviate the long roundabout navigation of Lakes Erie and Ontario. The route of the new ship canal has been surveyed, and the project declared to be practical, at no very great expense. Our railroad lines communicating with the great North-west must look well to their arrangements, or they will find much of their business going by the shorter northern routes in Canada. The Canadian lines of steamers running between Liverpool and Quebec now form a continuous short connection with Europe and uor western States.—*Scientific American.*

The Effects of Smoking in France.—The remarkable research made by M. Bouisson upon the danger of smoking has attracted the notice of the Academy of Sciences in Paris, and has been rewarded with high praise. The horrors hitherto unknown, or unacknowledged, with which smokers are threatened, nay more, convicted by M. Bouisson, are sufficient upon bare anticipation to ruin the revenue and the pipe-makers also. Cancer in the mouth M. Bouisson declares to have grown so frequent from the use of tobacco that it now forms one of the most dreaded diseases in the hospitals; and at Montpelier, where M. Bouisson resides, the operation of its extraction forms the principal practice of the surgeons there. In a short period of time, from 1845 to 1859, M. Bouisson himself performed sixty-eight operations for cancer in the lips, at the Hospital Saint Eloi. The writers on cancer previous to our day mention the rare occurrence of the disease in the lips, and it has therefore become evident that it must have increased of late years in proportion with the smoking of tobacco. M. Bouisson proves this fact by the relative increase in the French duties on tobacco, which, in 1812, brought an annual amount of twenty-five millions, and now give a revenue of one hundred and thirty millions; almost that attained by the duties on wines and spirits, and far beyond that rendered by those on sugar.

The use of tobacco rarely, however, produces lip cancer in youth. Almost all Bouisson's patients had passed the age of forty. In individuals of the humbler classes who smoke short pipes and tobacco of inferior quality, the disease is more frequent than with the rich, who smoke cigars or long pipes. It becomes evident, therefore, that it is owing more to the constant application of heat to the lips than to the inhaling of the nicotine, that the disease is generated.—With the Orientals, who are careful to maintain the coolness of the mouth-piece by the transmission of the smoke through perfumed water, the disease is unknown. M. Bouisson, whose earnestness in the cause does him the utmost credit, advises a general crusade to be preached by the doctors of every country against the immoderate use of tobacco, as being the only means of exterminating the habit.

Taking Cold.—A "cold" is not necessarily the result of low or high temperature. A person may go directly from a hot bath into a cold one, or into snow even, and not take cold. On the contrary, he may take cold by pouring a couple of tea-spoonfuls of water upon some part of his dress, or by standing in a door, or before a stove, or sitting near a window or other opening, where one part of the body is colder than another. Let it be kept in mind that uniformity of temperature over the whole body is the first thing to be looked after. It is

the unequal heat upon the different parts of the body that produces colds, by disturbing the uniform circulation of the blood, which in turn induces congestion of some part. If you must keep a partially wet garment on, it would be as well perhaps to wet the whole of it uniformly. The feet are a great source of colds, on account of the variable temperature they are subjected to. Keep these always dry and warm, and avoid draughts of air, hot or cold, wet spots on the garments, and other direct causes of unequal temperature, and keep the system braced up by plenty of sleep, and the eschewing of debilitating foods and drinks, and you will be proof against a cold and its results.

The Coal Area in the United States numbers 196,550 square miles; in Great Britain 5400: France 984; Belgium 510; Spain 200; Russia 100. It is estimated that the British coal fields contain 190,000,000,000 tons of this fuel, computing the coal veins at an average thickness of 35 feet. The North American coal fields, placing the average thickness at 20 feet, have the enormous amount of 4,000,000,000,000 of tons.

A Remarkable Spring.—The Gallatin (Tenn.) *Examiner* says:—Col. James Glover, of the California Overland Mail Company, informs us of the existence of a remarkable spring, on his route, 280 miles east of El Paso, on the road leading to San Antonio. It is fully 150 feet in diameter, and has been sounded to the depth of 8000 feet without finding bottom. The surface is as smooth as that of a mountain lake. It breaks out, running about three miles, when it disappears, and again six miles distant re-appears, forming a stream fifteen to twenty feet deep in some places. It is slightly impregnated with alkali, and contains five varieties of fish. It is called the Leon Hole.

Human Endurance.—During the Arctic voyages in search of Sir John Franklin, it was ascertained what a seaman can do in the way of traveling, carrying, and dragging. The maximum weight proper per man was ascertained to be 220 lbs., and of that weight, 3 lbs. per diem was consumed by each man for food and fuel—namely, 1 lb. of bread, and 1 lb. of meat, while the other pound comprised his spirits, tea, cocoa, sugar, tobacco, and fuel for cooking. Upon this estimate it was found that, for a hundred days' journey, they could march ten miles per diem, and endure with impunity a temperature of 50° or 60° below the freezing point.

Knowledge, softened with complacency and good-breeding, will make a man equally beloved and respected; but when joined with a severe, distant, and unsociable temper, it begets fear rather than love.

Editorial Notices, &c.

The Westminster Review. April, 1860.—New York: Leonard Scott & Co.; Toronto: H. Rowsell and the other Booksellers. The contents of this number are: Vedic Religion; Manin and Venice in 1848-9; The Ethics of War; Plutarch and his Times; Austria, and the Government of Hungary; Parliamentary Reform, the Dangers and the Safeguards; Japan; Darwin on the origin of Species; Contemporary Literature; as will be seen, a very interesting table.

The Edinburgh Review for April, 1860.—New York: Leonard Scott & Co.; Toronto: H. Rowsell. The Articles are—Commercial Relations of England and France; The Youth of Milton; The Expense of Public Education in England; English Local Nomenclature: Civil Correspondence and Memoranda of the Duke of Wellington; De Broglies' Church and Roman Empire; The Alleged Shakespeare Forgeries; Darwin on the Origin of Species; France, Savoy and Switzerland.

We have received the American reprints of these valuable Quarterlies, through Mr. Rowsell of this city. The price of either Review is $3 per annum; any one of the Reviews and Blackwood's Magazine, $5 per annum; the four Reviews and Blackwood, $10 per annum.

Professor Buckland, of Toronto University, our accomplished and highly esteemed collaborator in the conducting of the *Agriculturist*, took his departure from Quebec on the 19th of the present month (May) in the steamship Bohemian, for England. He designs spending the summer in Europe, and will visit the great agricultural, cattle and implement shows in England,

Scotland, Ireland and France. We hope to be favored with some of the results of his observations fortnightly, for the benefit of the readers of the *Agriculturist.*

The Agriculturist.—The enlarged edition with which we commenced on the 1st April being again exhausted, we have further increased the number of copies printed from 15th May, and placed the price from that date to the end of the year at 30 cents, with bonus at the same rate (ten per cent.) as formerly, being 11 copies for three dollars. On the 1st July we shall again enlarge the edition, and place the price at 25 cents, with bonus in the same proportion.

The Agriculturist Post Free.—We understand that some of our Toronto subscribers were charged postage on the last number of the *Agriculturist,* by mistake of the clerks in the Post Office. On inquiring of Mr. Lesslie, the Postmaster, we were assured by him that the amount should be refunded to the parties.

Gladding's Horse Pitch Fork.—This is a very useful labor saving Implement, for unloading hay from the wagon into barn mows and lofts. To unload by horse power, the fork is connected with a block and tackle attached to the ridge, the fall being brought down to a match block at the door, to which the horse is fastened, and as he walks off on the ground, the fork goes up with almost a quarter of the load at once. With the Horse Fork a load of hay may be unloaded in much less time, and much less labor, especially on a high mow, than by hand. Mr. Stephen Bullock, who manufactures the article at Columbia Cross-Roads, Bradford Co., Penn., sends us a notice for insertion. It is too long for our space, but we can recommend the article to any who would like to try the experiment of unloading hay by horse power. The price of the Horse Fork, with Rope and Pulleys, is $12.00.

Market Intelligence.

TORONTO MARKETS.

Monday, May 28, 1860.

The receipts of grain at this point, Saturday, and to-day were very light. Scarcely any change in former prices is noticeable. The following are the quotations:—

Fall Wheat $1 30 a $1 45. Spring wheat, $1 10 a $1 13.

Peas 55c a 64c.

Oats 32c a 34c.

Barley nominal at 55c a 60c.

Flour inactive and dull; lower grades declining. Superfine No. 1 at $5 00 a $5 05; do No. 2 at $4 60 a $4 75; fancy fall wheat at $5 85 a $5 50; fancy spring wheat at $5 25 a $5 30; extra superfine or double extra, $6 80 a $6 50.

BUFFALO MARKETS.

Buffalo, May 28.

Grain.—Wheat dull and heavy. The only sale reported this morning was 2,500 bush. Canada Club at $1 07. Corn in moderate demand and market lower. The sales of the morning include 17 000 bushels Illinois, not strictly prime at 50c, and 12,000 bushels prime sample Illinois yellow at 53c.

Oats.—Market lower with an improved demand; sales this morning 3,000 bushels Canada at 34c, and 11,000 bushels do. free five days, at 34½c. Other grains nominal.

Provisions heavy. Mess pork firmer and held to-day at $17.

NEW YORK MARKETS.

New York, May 28.

Flour.—Receipts 13,191 barrels; sales 9,000 barrels. State and Western less active but without material change; superfine State $5 10 a $5 15; extra State $5 20 a $5 25; round hoop Ohio $5 80 a $6; superfine Western $5 10 a $5 15; common to good extra Western $5 25 a $5 50; Southern quiet and unchanged; sales 600 barrels at $5 75 a $6 25 for mixed to good, and $6 30 a $7 75 for fancy and extra. Canadian quiet; sales 400 barrels at $5 30 a $7 40 for extra.

Grain.—Wheat drooping; sales 12,000 bushels at $1 25 for Milwaukee Club. Corn heavy and lower; sales 65,000 bushels at 53½c a 60c for unsound, and 64c a 65c for sound. Oats steady; Southern and Jersey 38c a 40c; Northern and Western 39½c a 42c.

Provisions.—Pork firm; sales small at $17 50 for old mess, and $17 50 a $18 for new prime; $12 50 for old, and $13 62 for new. Lard firm; sales small at 11⅛c a 11½c for barrels.

BEDDING OUT PLANTS.

Mr. J. Fleming, Seedsmen & Florist, Yonge Street, Toronto, offers for sale 20,000 beautiful Bedding and other Greenhouse Plants, including the finest varieties of Verbenas, Petunias, Heliotropes, and other Bedding-out Plants, at $1 per dozen. The Plants are well grown, and will bear transportation to any part of the country.

For $2, remitted free of postage, Mr. Fleming will send free by Express, to all stations on the Great Western Railway, and by Grand Trunk West to Sarnia, and East to Brockville, also to stations on the Northern Railroad, one Basket of Plants, carefully packed, comprising 6 Verbenas, 2 Geraniums, 2 Heliotropes, 2 Fuschias, 2 Petunias or Dahlias, with descriptive catalogues.

SEEDS.

Mr. J. A. Simmers, of the Toronto Seed Store, corner of Front St. and West Market Place, in returning his sincere thanks for the patronage so liberally extended to him for the past four years, since commencing the business, would beg to direct the attention of his friends and the public, to his large and well assorted stock of Fresh Garden, Field and Flower Seeds, all of which have been procured with his usual well-known care and practical knowledge from parties in Europe and America, personally known to him; he would therefore venture to say that the quality of all his Seeds cannot be surpassed in this Country or anywhere else.

Farmers and Gardeners are requested to examine before purchasing elsewhere, for it is their interest particularly to procure the best of seed to be had, and spurious seeds are often offered by unscrupulous parties under pretended inducements, which if depended on, may prove fatal to crops, on which purchasers depended for a living.

No seed is sold in Mr. Simmers' establishment without first being carefully tested.

Large supplies of all the leading varieties of the different kinds of seeds, most suitable to this climate, are constantly kept on hand.

Catalogues with full directions for sowing and raising vegetable and other seeds, may be had gratis, on application; and Mr. Simmers being a practical gardener of 19 years' experience, he will always feel happy to give all necessary information, personally, regarding the mode of cultivation, selection of varieties, &c., gratuitously to any of his customers.

For the convenience of those who wish to stock a small Garden with Vegetables and Flowers, but are unacquainted with the proper quantities for that purpose, he has collections ready put up. Price of Collection of Garden Seeds, $2; Flower Seeds, $1.

HUNGARIAN GRASS.

This valuable grass was introduced into the county of Lambton three years since by the County Agricultural Society, and has given very great satisfaction to all who have tried it. Its ordinary yield is four tons to the acre, and in some cases six tons have been cut. Cattle and all kinds of Stock are very fond of it, preferring it to Timothy. Its fattening qualities too are believed to be superior to those of any other known grass.

Archibald Young, Esquire, Treasurer of Lambton County Agricultural Society, has obtained a quantity, and will send to any person making a postpaid application, sufficient to sow one-third of an acre for One Dollar, or One Bushel for Five Dollars.

All seed will be sent free of charge.

Ayrshire Cattle.—Patrick R. Wright, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale are liberal.

Full Pedigree of all animals—U. C. Stock Register.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten ordered and paid for in advance.

THE

Canadian Agriculturist,

AND

JOURNAL OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, JUNE 16, 1860. No. 12.

SUMMER WORK.

Not for several years have the prospects of all kinds of farm crops and fruits, with the exception of the fall wheat in a few localities, been more encouraging in this province than at the present moment. From all parts of the country we have the same report, the same glowing descriptions of the beauty and luxuriance of the vegetation. The late spring frosts, which astonished us last year, and did so much mischief in the beginning of June, were altogether of an exceptional character, and fortunately have not repeated their visit this year. The supply of rain has been very limited, but the crops do not appear to have suffered materially on that account.

Very little now remains to be done to complete the seed sowing operations of this season. The white globe or other varieties of the English Turnip may be sown from the present time to the 1st of August. It will give a more bulky crop than the Ruta Baga, but of course not equal in quality for feeding purposes. Where the Swedes or Mangels or Carrots have failed, or where a sufficient quantity of them have not been sown, the white turnip may be put in as a substitute. They may be sown broadcast or in flat drills the latter is preferable, upon any rich, porous, well prepared soil. Seed, one to two pounds per acre. Hungarian grass may still be sown either for hay or soiling. Indian Corn may be sown for soiling; it is rather too late now to sow this crop to expect it to come to maturity, although we have known the early ripening varieties sown as late as the 20th June and produce a fair crop. Buckwheat may be sown from the latter part of this month to the middle or end of July, upon light sandy or loamy soils. If intended to ripen the seed it should be sown not later than the middle of July, so as to avoid the early autumn frosts; if to be ploughed in for manure, it may be sown later. The quantity of seed is about a bushel per acre sown broadcast; if drilled, less will do.

All sorts of root and hoed crops, such as turnips, mangels, carrots, Indian corn, &c. as soon as they appear sufficiently above ground, should be gone through carefully with the cultivator and hand hoe to keep down the weeds and thin them out to the proper distance. The distance to which these crops should be thinned depends somewhat upon the variety of the root, and upon the quality of the soil. If the growth of leaf is likely to be luxuriant, they should

be kept at somewhat wider distances than otherwise, but as a general rule, if mangels and turnips are in drills two and a half feet apart, they should be thinned to a foot apart in the drills. Carrots will sometimes make room for themselves and fill the ground in a surprising manner, if sown in the right sort of soil, without any great attention having been paid to the thinning process, but to grow an even crop of large, well shaped roots, the rows should be a foot and a half or more apart, and the carrots six inches apart in the rows.

The preparation of manure, and the application of it to the summer fallows for fall wheat, will form one of the chief operations on many farms till harvest time commences. As a general rule, the manure not used in putting in the potatoes, turnips and other spring crops, is applied to the fallow. No doubt it is useful in this way, both as supplying certain fertilizing ingredients to the soil, and aiding to give it that mechanical texture required by the wheat crop. At the same time, if farmers would not so generally look upon the wheat fallow as the proper and only destination for the dung heap, if they would lend the manure for a year or two to the growth of mangels or turnips, and sow five or ten times the breadth of these that they have had heretofore, we are sure that they would soon find themselves great gainers by the process. The abundance of roots fed to the cattle in winter and spring would quadruple the quantity of manure, and make it also of a much better quality, while the superior condition of the cattle would be no small advantage. The wheat would then come in, in the proper place in the rotation, and receive the benefit of the dressing given the previous crop of turnips, and after a year or two there would probably be as much good manure left each season to apply direct to the naked wheat fallow, after supplying the root crops, as there would have been altogether if the roots had not been produced and fed. All the manure about the yards with all the waste litter, weeds, refuse, &c., should be gathered carefully in heaps in the beginning of summer, and when a certain degree of fermentation has taken place, the heaps should be turned over, to promote the decomposition, and ensure the destruction ot weed seeds. If a light covering of earth can be given, and the leakage pumped over the heap, it will improve the quality of the mass. The manure may be drawn out to the fallow as opportunity occurs, and turned under with the second or third ploughing.

We alluded to the subject of fallows in our last. Experience shows that the longer ground is under grain crops, with a frequent recurrence of the naked fallow, the more liable fall wheat is to be heaved out with the spring frosts. It loses that open, fibrous texture, similar to the composition of new land, which enables the root of the wheat plant to spread and take a firm grasp of the soil, and in this way, as well as offering a sort of medium for the filtration and escape of the superfluous water, prevents the heaving out operations of the spring frosts. Thorough drainage with tiles would doubtless be the best mechanical improvement of the soil to prevent frost killing of wheat, but till that improvement is effected, the condition of new land may be imitated to a certain extent, and the requisite favorable state of the soil obtained by a judicious course of cultivation. In the first place, it should not be considered necessary to sow fall wheat upon the same field every second or third year. It is a pure mistake to suppose that this is profitable. Once in five or six years is quite often enough. But after land has been two or three years in grass, having previously been well cultivated, cleared and manured before seeding down, it will be in good condition to obtain a wheat crop from. We should recommend ploughing once, say about the 1st June, or a month earlier or later according to circumstances, and then to use the harrow

and cultivator frequently during the summer to prevent the growth of weeds, but not to plough again till sowing the wheat. The sod would then turn up perfectly killed, would readily crumble to pieces, and would give the soil that rough, turfy, soddy texture, which would furnish the wheat plant with the protection it requires against the winter and spring frosts. We know that the frequent ploughings ordinarily given the summer fallow have a very beneficial effect, especially on strong lands, from exposing the soil to the disintegrating and other fertilizing influences of the atmosphere, but at the same time unluckily, they are apt to reduce it to that exact state of fine subdivision which, in the absence of thorough drainage, favours the heaving out of the wheat plant by the frost.

Hay making will commence in some parts of the Province, in fields where the crop consists chiefly of clover, before the close of the present month. Clover should be cut as soon as it has fully blossomed, and begun to assume a brownish hue.—There is more lost by letting it remain too long upon the ground than by cutting it a little too soon. Clover should not be too much exposed to the wind and sun. Unless very heavy, or unless it has been exposed to rain, a single turning, after it has wilted a little on the top of the swath, will be enough. It may then be placed in cocks till sufficiently dry to go into the barn. A sprinkling of salt, say 4 or 5 quarts to each load, will aid in preserving the hay, and will make it more palatable to the cattle.

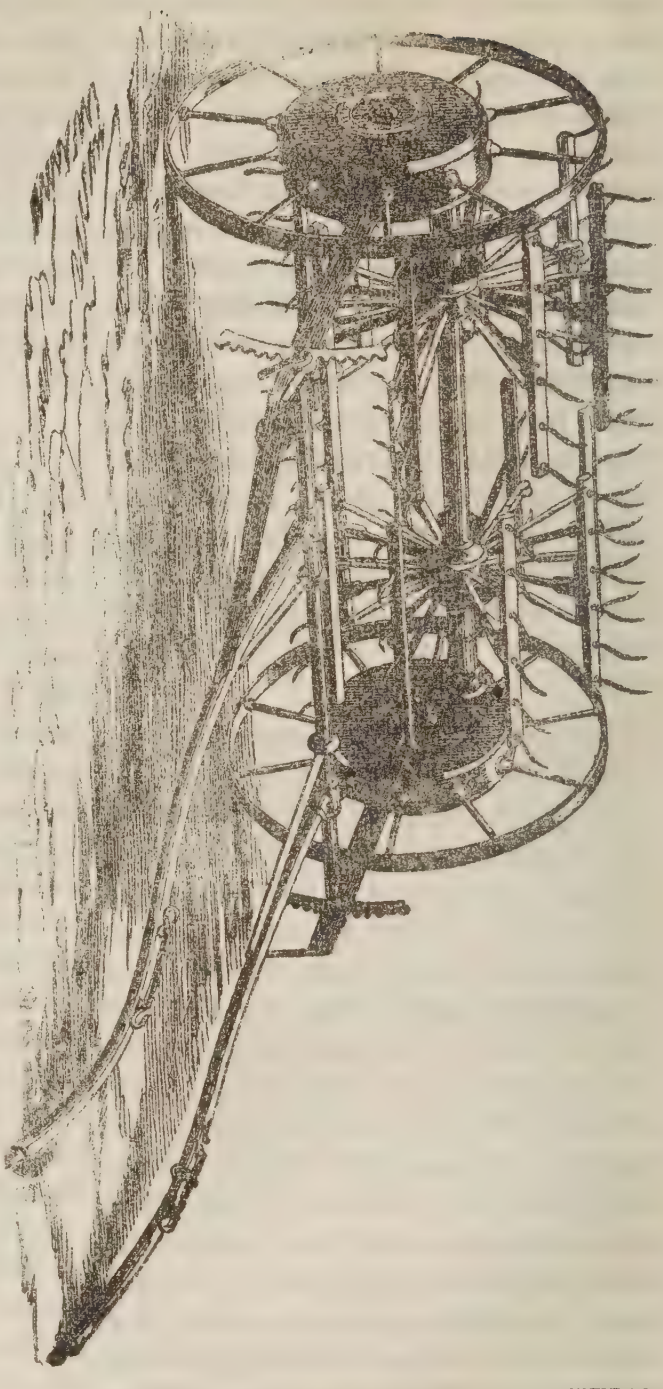
HAY TEDDING MACHINES.

The operation of shaking out the swaths of newly mown grass, either by the hand or fork, is necessarily slow, and not unfrequently the work is but imperfectly done. This was particularly felt in England, where the hay crop is usually heavy, and consists of a number of fine, juicy grasses, which require to be evenly spread and exposed to the action of the sun and air, in order to make them into hay of the finest quality. Hence several years ago a machine was invented for spreading the grass, drawn by a horse, and performing ten or a dozen acres a day; that is a hay-making day; for hay should not be moved till after the dew is off in the morning, nor after it has fallen in the evening.

Within the last half dozen years great improvements have been effected in these machines, which now consist of two cylindrical sets of rakes, side by side, in the same length formerly occupied by one; each being worked by cog-work from the wheel next it. In turning, the outer wheel will thus always give motion to that half next it, and the liability to miss its work on turning, prevented. Another important improvement consists in the means now furnished for reversing the direction of its revolution. On first being used in the hay field, it is drawn across the swath, the cylindrical frames revolving contrary to the wheels, as the machine proceeds; the grass is thus carried under and over the machine, and tossed high into the air. After this first tedding, the motion of the machine may be reversed, and the grass is thrown from behind it, with much less labor, but with almost equal efficiency, now that it is already lying evenly spread, and it is thus turned and winnowed. The rakes attached to the cylindrical framework are held stiffly, but not rigidly to their position by suitable springs.

The accompanying engraving represents the latest improvements in NICHOLSON'S PATENT DOUBLE-ACTION HAY MAKING MACHINE, as manufactured by the old and celebrated firm of RANSOMES & SIMS, of Ipswich, England. Its principal feature is the substitution of annular gearing, by which the reverse motion of the fork-barrel or frame is obtained in place of the intermediate pinion as used in the machines

generally employed. This arrangement is of the utmost importance in diminishing the friction, (and, consequently, wear), as well as the draught of the machine. There is a compact arrangement as shown in the engraving, for raising or lowering the machine, according to the state of the crop and condition of the ground. The arms that carry the forks are of wrought iron, the joints by which the fork heads are attached to them simple and remarkably strong, the arrangement of the springs novel and effective, and such as to allow the machine to be worked on uneven ground, and in the heaviest crops. Every possible precaution has been made to prevent the hay from coiling round, or lodging on any part of the machine, which from the simplicity of its construction, and superior workmanship, can be easily managed, and kept in efficient working order. The price is £16 complete, a sum, the saving of which the machine will effect on an extensive grass farm, the first year. As the mower and horse-rake are now extensively used in Canada, nothing seems now wanting but the tedding-machine to render our hay-making operations as complete as possible. A single machine might be made to do the work on several adjoining, or neighboring farms.



Hay making machines can be obtained from manufacturers in the adjoining States. Thos. J. Goff, of Warren, R. I., is the patentee of a machine of simpler form, and probably considerably lower price than the English implement, though perhaps not so efficient for heavy grass. Probably some of our enterprising implement makers in Canada will soon be bringing out something of the kind.

THE MASSACHUSETTS CATTLE DISEASE.

The fearfully destructive disease which has made its appearance amongst the cattle in Massachusetts during the past winter and spring, has already been the cause of the loss of a very large number of animals, and it is impossible to say how long it may continue to exist, or to what distances it may extend. The inhabitants of that and the adjoining states, as they have good reason, are greatly alarmed at the progress

the disease is making. The newspapers and the agricultural journals are largely occupied with the subject. The Legislature during their late session passed a law with the view of arresting the spread of the disease, and a special meeting has been called to devise further measures with the same object. The disease is recognized as Pleuro Pneumonia, although some of the writers consider it something more, and of a more destructive character than the European cattle disease under that name. We gave in our last number a sketch of the history of Pleuro Pneumonia in Europe and the East from the earliest times in which there is any record of it to the present day. We give on another page an article from the *North British Agriculturist* showing the manner in which the disease has developed itself in Great Britain. It would seem from this account scarcely to have been lately of so virulent a character there as it has shown itself in Massachusetts, and in other countries where it has been known. This difference, however, may be owing to a variety of causes, to climate, to greater or less facilities for arresting the disease, or to the greater degree of intensity which diseases sometimes manifest on their first appearance in a country or district. Differences of opinion exist as to whether the disease is merely contagious, or whether it is epidemic. Some eminent writers have given it as their opinion that it is epidemic, that it is caused, like cholera and some other epidemic diseases to which the human species are subject, by some subtle influence which cannot be detected, existing in the atmosphere over wide areas of country. Others again, and we believe the larger number, contend that it is purely contagious, that animals can only receive it either by contact with or proximity to animals already diseased, or to some substance infected by them. The progress of the disease so far, in Massachusetts, affords the strongest evidence of the truth of the latter theory. All the cases which have occurred can be traced to one single herd.

The farmers of Canada cannot be too soon made aware of the deadly character of this disease. Should it make its appearance in this country it would be one of the greatest disasters which can be conceived. From our geographical position, should the disease prove to be merely contagious, we have a better means of protection, in our water boundary, from its entrance into the country than they have in the adjoining states. But there are many ways in which it might be introduced, and precautionary measures cannot be taken too soon. For instance, parties in Maine are said to be buying cattle in Massachusetts, for slaughtering purposes, because cattle can be got *very cheap* there. Owners of cattle in Massachusetts who fear they may become infected, are of course likely enough to dispose of them readily, and in this manner the disease might easily be introduced into a neighboring state. From Maine to Canada, its progress by way of the Grand Trunk Road would be a very simple matter. Or the disease may find its way, in spite of every precaution, to the Western States, and thence be easily brought into this country by way of the Great Western or the Grand Trunk Railroad. It is said that cattle have been infected by mere contact with persons or objects that have been near diseased animals. Our government cannot too soon give their earnest attention to the matter, and if it appears necessary, we trust they will adopt the most stringent measures to prevent a single animal of the cattle tribe from entering the country. Should any person be induced for the sake of gain to import *cheap* cattle from the infected districts and thus introduce the disease, we scarcely know of any words of reprobation which would be too strong to characterise their conduct.

We give the following condensed sketch of the progress of the disease since it has made its appearance on this side of the Atlantic.

Mr. W. W. Chenery, residing in Belmont, 5 or 6 miles from Boston, Mass., having

become satisfied of the superior qualities of some cattle he had imported from Holland, determined to import some other animals of the same breed, the best that could be obtained. He transmitted his orders to that effect in Dec. 1858, and four cows were shipped for him at Rotterdam in April, and arrived at Boston on the 23rd May 1859.

We learn from a letter published by Mr. Chenery in the *Boston Cultivator* of March 17th last, that—

"Upon examination the cows were found to be in an extremely bad condition,—very much bruised and emaciated,—one of them, as the mate of the bark stated, not having been on her feet during the twenty days preceding her arrival; another one was totally unable to walk, and these two animals were accordingly carried to the farm in waggons—the remaining two were driven out.

Deeming it impossible for the first mentioned cow to recover, she was on the 31st of May slaughtered, and on the 2d of June following the second cow died. At that time, Mr. Chenery was fully persuaded that the bad condition of these animals was caused merely by neglect on the voyage.

The third cow of this importation seemed to be doing well until about the 20th of June, when she became sick and died in ten days after. The fourth cow, Lady Beemster, had, up to a short time since, shown no indications of sickness, but was, on the contrary, in a thriving condition.

Early in the month of August following, symptoms of disease were observable in the Dutch cow, Lady Louise, (imported in 1852.) She died on the 20th of the same month. About this time several other animals were taken sick in rapid succession, and then it was that the idea was first advanced that the disease was identical with that known in Europe as "Epizootic Pleuro-pneumonia." From that date every possible precaution was taken to prevent the spread of the supposed distemper, strict orders having been given that no animals should be allowed to leave the farm nor any strange cattle to come upon the premises.

The following extract from Mr. Chenery's letter-book, in answer to an application for stock during the prevalence of the disease, will serve to show his views with regard to it at the time: "I am, at present, obliged to decline any applications for stock, owing to an epidemic disease in my herd. The disease is that known as 'Pleuro-pneumonia,' and I have already lost seventeen head, and have ten more very sick. I am using every precaution to prevent the disease from spreading, and you will of course see the propriety of my refusing to allow any animal to leave the farm until the infection has ceased"

"It is manifest," Mr. C. continues, "that the means used to prevent the spread of the distemper have so far proved eminently successful, inasmuch as, notwithstanding I have lost some thirty animals—nearly half of my whole herd—there has not been a single case of the disease elsewhere in the neighborhood of my farm."

But Mr. Chenery had in July, 1859, sold three calves (two heifers and one bull) half Dutch and half Ayrshire, of his old stock, to a young farmer, named Curtis Stoddard, in North Brookfield, Mass. Stoddard owned a large herd of cattle, and was in the habit of trading largely in them, and from this source the disease spread in all directions. We learn from a statement of the Hon. Amasa Walker, published lately in the *Homestead*, that in August last one of the calves purchased from Mr. Chenery by Young Stoddart was taken sick.

"His father took the calf home to his farm to nurse. It grew worse, and so it was taken back. The herd of the elder Stoddard became sick, and some died. Some of the younger Stoddard's cattle died, but no excitement was caused up to the 11th of February, when it was found that the disease was contagious. Mr. Feedleham, at whose place Stoddard put up, when drawing wood from Braintree, discovered it in his herd. A Mr. Olmstead bought cattle from Stoddard; his cattle died in January. Some other herds were taken sick, and all were traced to some connection with the Stoddard's herds.

"Last November, young Stoddard had an auction of his herd, which were chiefly heifers. They were sold two or three to a place. The disease began to attract serious attention, and to be investigated in February, and on the 23rd, he, (Mr. Walker,) drew up a petition, and his brother took it, after getting numerous signatures, to the legislature. The subject was for five weeks fooled with; a resolution, worse than nothing, proposed, amended, tabled, etc., and up to the 2nd of April, nothing was done. Then the law was passed, under which the

Commissioners now act. It contemplates only the check of the disease by slaughter of the animals, and gives power to accomplish only this. It takes a long time to get an idea into the comprehension of common people. So the farmers teamed and travelled, and the cattle came greatly in contact with each other.

"To recur again to one of the chief causes of the spread of the disease: On the 19th of December, a house was moved by twenty-three yoke of cattle belonging to thirteen different herds—one yoke came from Stoddard's—one recently sold by the elder Stoddart, every one of these twenty-three then took the disease. Every case can be traced to Curtis Stoddard's stock.

"One of Stoddard's heifers was bought by a Mr. Tucker, he kept it a while and sold it to a North Brookfield man; the animal went to 'Ragged Hall,' and was afterwards bought by Mr. Bowen, in Sturbridge, three miles from the Connecticut line. He sold it to a man on 'Coy's Hill,' Mr. Gleason, and poisoned all of his neighbor's herds. Bowen sold and exchanged others of his stock, seven to ten, in Sturbridge. The original heifer was killed last Saturday, and it was found that this animal *was getting well!* The lung was attached to the diaphragm; the pleura, the pericardium, and the lobes of the lungs had run together, and were healing. This is the only case yet discovered where it was pretty evident that nature, by a great effort, was going to heal the lungs, and the animal would become comparatively sound, after poisoning 200 or 300 head."

The Massachusetts Legislature took up the question in March, and on the 4th April passed a law providing for the appointment of three commissioners to visit herds where the disease was known or suspected to exist, and with power to cause all the animals in such herds to be forthwith killed and buried, and the premises where they had been kept to be purified. All the cattle in such herds not appearing to be infected, were to be appraised before being killed, at the fair market value, and the amount paid to the owners. Any person disregarding orders of the Commissioners, or selling an animal suspected to be infected to be subject to a fine not exceeding $500. The amount appropriated to carry out the provisions of the Act was $10,000. The Commissioners appointed were Paoli Lathrop, of South Hadley, Richard S. Fay, of Lynn, and Amasa Walker, of North Brookfield. They proceeded with their work energetically, and soon expended the sum placed at their disposal. They were then assisted by a guarantee fund raised by subscription.

The following sketch of their proceedings for the first few days, from the *Rural New Yorker*, may be taken as a type of the whole:—

"The first place visited was North Brookfield, in which neighborhood are some twelve or fifteen stock-owners whose herds number about one hundred and fifty head of choice cattle. The disease, in greater or less development, was believed to be among them all. The Commissioners were accompanied by several surgeons and cattle doctors from Worcester and Boston, and upon the farm receiving their earliest visitation, caused fourteen animals to be killed that they might trace the progress and character of disease in all its stages. A cow that died the night before the Commissioners arrived was examined, and both her lungs were a mass of frothy, cheesy corruption. One cow that was taken so long ago as the 1st of January, and seemed to be recovering, appearing bright and healthy, was slaughtered. The left lobe of the lungs was sound, but from the right was taken a mass of pus, looking like rotten cheese, of more than a pint in measurement. She might possibly have thrown off the disease and lived, had she not been killed. Another cow in the same herd, and showing stronger signs of the disease, had similar, but a greater amount of pus in the lungs, and with it a large amount of watery fluid. An ox that looked bright and well, and ate and chewed his cud as if in a healthy condition, was among the slain, and one of his lungs was a mass of corruption. Another singular case was that of a cow that calved some ten days ago; one lung was healthy, but in the other the disease was developing itself in scattered balls, or masses of pus, looking like liver on the outside, but on cutting, like rotten cheese; and her calf was found to have the disease in precisely a similar stage. A calf, nearly a year old, that was brought from Mr. Chenery's herd in Belmont at the same time with the calf to which the whole disease is traced back, was also among the animals killed by the Commissioners, and it was found to have the disease only in the very earliest stages.

On the day following, the stock belong-

ing to C. P. Huntington, where there were some "bad cases," had an examination. Mr. Huntington had previously lost eleven cows by pneumonia, and the Committee killed three more, diminishing his stock to eleven head. Dr. Bates immediately entered the stable and began the laborious process of examination by percussion, while the appraisers estimated the value of the stock. Two cows were found diseased, and the rest had been so much exposed to infection, that it was decided to kill them also. In the first one examined, they found a strong adhesion of the lungs to the diaphragm, and acute disease of the right lung. The second case also exhibited adhesion, accompanied by indurated lung tissue, and sloughing of the left lung. Cases were observed in the course of the day where the sloughing business had proceeded so far that there was very little healthy lung left. And yet, so insiduous is the progress of the disease, that the farmer stoutly declares his cow has never been sick, and will not be convinced that there is anything the matter with her till the proof is laid before his eyes.

From North Brookfield the Commissioners proceeded to New Braintree and visited the farm of Alden W. Woodis. At this point the medical force was much increased. The disease was introduced upon the farm of Mr. W., by the temporary presence of an ox, from the "Stoddard" farm, Mr. Stoddard having purchased cattle from Mr. Chenery, at Belmont, who imported the infected stock. The disease being revealed, eighteen head, the entire herd of Mr. Woodis, were slaughtered and buried.

The next farm visited was that of Chas. Needham, also in New Braintree, where the Committee had three cows killed before. Mr. Needham had exchanged cattle with Curtis Stoddard. The doctors found a great deal of water in the left chest of the third cow examined, and only a few healthy spots in the lung. Twenty-eight cattle were killed, completely emptying the barn.

Following that of Mr. Needham came the farm of Leonard Stoddard. The doctors made their examination, and every hoof in the barn, numbering forty-nine, including ten pairs of fine oxen, was condemned to die in the morning. Next in order came the stables of W. W. Chenery, whose residence is in Belmont. It is several months since Mr. C. lost an animal, and he felt quite confident that the malady had entirely left his herd. To render assurance doubly sure, three cattle were chosen for the knife, one a cow that had been sick, but was deemed nearly well, with two heifers, one having shown no signs of disease and the other but slight, such as were indicated by a slight cough, and they all proved to be diseased—one of the lungs of one of the heifers being filled with pus. After an examination of the animals slaughtered, the Commissioners returned to the barn and submitted the entire herd to a professional inspection. The stock consists of about forty head, and all but three or four proved diseased, some of them very bad—the symptoms and indications of the disease being unmistakable. The mode of examination was by sounding the chest of an animal over the lungs, by slight raps—the tone of the resonance, or reverberation of the sound thereof being the test.

Cases similar to the foregoing, might be multiplied did space permit."

Before the end of April about 400 head of cattle in North Brookfield were said to be infected with the disease. It was found to extend over a greater area, and to be more formidable than the commissioners had anticipated. Still they hoped to be able to extirpate it if afforded sufficient money assistance. At that time the disease was confined to a territory about 12 miles square, a territory abounding in cattle. In a memorial of the commissioners, asking for further aid, addressed to the State Board of Agriculture and dated May 15th, they say:—

"In spite of all obstacles, the Commissioners have not hesitated to go to the fullest extent of their powers in the discharge of their duty. They have placed an injunction on every suspected herd. They have destroyed all that gave the slightest appearance of disease, from the poor man's single cow, to the large and choice collections of the most extensive farmers. They have explored every spot which has been brought to their notice as having been in any way exposed, and have endeavoured to ascertain the limits beyond which it seems impossible that the disease can have progressed.

The central point of the infected district, it is well known, is North Brookfield, the farm of Leonard Stoddart, into which the disease was thoughtlessly and innocently introduced, and from which it has been carelessly allowed to go out. Around this spot the destruction is complete; but few animals, indeed, being left in the unfortunate town. The disease has been discovered in the north, in those parts of new Brain-

tree, Oakham and Rutland lying contiguous to North Brookfield; on the east, in Spencer; on the south, in Brookfield and Sturbridge; and on the west, in West Brookfield, Ware and Warren. It is believed that the precise course and extent of the disease have been explored in each of these towns.

The number of persons whose cattle have been condemned or destroyed, is 75. The number of animals already marked or killed, is 750.

The Commissioners wish they could assure the Board of Agriculture and the community that their work will end here. But they cannot. The fire that is wasting prairie and forest may apparently be quenched for a time; and it is only when, on the distant horizon, its terrific work is painted, and heaven and earth seems all ablaze, that the insidious and appalling power of the elusive element comes home to the heart of its pursuers.

This is not the time nor the place to enter into an investigation of the history and character of the disease—that, it is hoped, may be done hereafter. But it is important that the public should know and appreciate the full extent of the contagion. That the disease is peculiar to itself there can be no doubt whatever. The name, Pleuro-Pneumonia, which has been applied to it, and which in its ordinary acceptation signifies inflammation occupying the pleura and lung at the same time, does not by any means indicate its true character. The inflammatory stage of the disease is hardly perceptible. But throughout the substance of the lungs, and in the membrane covering them and lining the cavity of the chest, there seems to have been diffused a morbific poison, under the influence of which the vitality of the parts is threatened with speedy destruction. The contagion is inevitable. Wherever an animal has been exposed, in that animal the disease is sure to be found. Every creature that went out from Leonard Stoddart's herd carried the malady with him, and imparted it wherever he went. In no case has an animal been examined on account of its history, that the disease has not been found in a greater or less degree. In whatever herd the disease exists, the animal that carried it there can be pointed out, and his exposure traced back to that wretched calf that went from Belmont to North Brookfield. The disease is not epidemic. It is not found except as the result of contagion. It has broken out in no spot without a known and well-authenticated cause. But it passes from animal to animal in its deadly career, marking every victim that comes within its fatal grasp as surely as the water of Tofana or the poison of Brinvilliers.

To keep the plague within its present limits, and to draw a cordon around the infected district, is now the great object of the Commissioners—a work which the nature of the disease renders practicable, and which nothing but public apathy and inaction will prevent."

An extra session of the Massachusetts legislature was held in the beginning of the present month, for the special purpose of taking up the consideration of the subject. The Governor, in his message on the opening of the session, says:—

"A detailed report of the operations of the Commissioners under the statute is herewith communicated to the Legislature. It appears that all suspected herds have been examined, and many cattle have been isolated by order of the Commissioners. 842 have been slaughtered, for which compensation has been allowed by the Commissioners to the amount of $20,432 83.

"The appropriation of $10,000 made by the Legislature was very soon exhausted. The labours of the Commissioners would have been at once brought to a close; but the distemper continuing to spread, and the public mind becoming more excited in the districts where its ravages were chiefly confined, and where it seriously affected and seemed to threaten the destruction of the principal occupation and support of the people, many generous and public spirited citizens representing different business interests, voluntarily subscribed to a fund to continue the work, notwithstanding the failure of the appropriation, and to guarantee all parties concerned against loss, in case the Legislature should fail to recognize and provide for the unauthorized expenditure of money.

"Subscriptions to nearly the amount of $——were at once made, and the Commissioners, under the protection of this guarantee, made some further progress, but the disease had spread over a much larger territory than was at first supposed. More definite instructions on the part of the Legislature were desired as to the course to be pursued. It was believed that more stringent regulations than those allowed by the act of April 4, 1859, were required, and additional appropriations from the treasury would be indispensable.

"On the 18th of May the Commissioners made a formal request that an extra ses-

sion of the Legislature should be called.—This request was supported by a petition of a committee of the State Board of Agriculture, by several members of the Board, and by many influential and honorable citizens of different parts of the Commonwealth. On the 24th day of May the proclamation was issued for a session of the Legislature for the consideration of this special subject.

"Two consideration alone have impelled me, with very great reluctance, to summon the members of the two Houses from their homes at this season of the year. The first has reference to the importance of the interest involved. It is not a disaster affecting Massachusetts or New England alone. If the contagion is allowed to spread without effort to extirpate or restrain it, ultimately it must ravage the whole country. The neat cattle in the United States in 1850 numbered 18,378,000. Estimating the number at the present time upon this basis, by adding 20 per cent. to the number as the natural increase in ten years, it will now exceed 22,000,000.

"The number of milch cows returned in the census bureau for 1850 was over six millions, and the number of working oxen was nearly a million and three quarters.—The value of butter, cheese, and milk not used for butter and cheese, returned in 1850, as a portion of the agricultural product, according to the estimate of Prof. Tucker, exceeded eighty million dollars. To this must be added an equal sum as the value of cattle slaughtered for the market; and the value of the labor of nearly a million yoke of working oxen at the present time, estimating their labor for a year at $20 per yoke, and the aggregate value of this yearly product exceeds one hundred and eighty million dollars.

"There is but one agricultural product of equal importance—that of Indian corn. To the aggregate thus stated must be added the value of the cattle themselves, which, estimated at $20 per head, amounts to nearly $370,000,000. Upon the basis of the census of 1850, this interest involved a value of products and property equal to $400,000,000. The average increase in ten years may be safely estimated at 20 per centum, and this would make the same values equal for the present year to $540,000,000.

"But these figures very imperfectly represent the interest of the American people in this gigantic industrial product. How far it enters into the employment of the great majority of persons, how many millions are dependent upon it for the luxuries and necessities of life, to what extent it contributes indirectly to public health and enjoyment, and how large a part it forms of the sound and valuable business of the country, are considerations which naturally occur to the mind of every intelligent person.

"If we could confine the ravages of this fatal distemper so unfortunately deposited upon our shores, to our own State, it would still be of sufficient importance to demand the earnest attention of the people. But unless extirpated on the instant when it appears, it cannot be so confined. If it spread over our own territory, it must ravage other States, and it becomes a duty of the highest character, one which we owe alike to ourselves and to the people of the whole country, to make every available and possible effort to restrain its ravages, if extirpation is impossible."

The Governor then proceeds to recommend various amendments to the Act of April 4th, and suggests the propriety of a thoroughly scientific investigation of the disease.

The subject has also engaged the attention of the United States Congress, and a committee has been appointed to procure information in relation to it.

Dr. Dadd, Veterinary Surgeon, and one of the editors of the American *Stock Journal*, assisted the Commissioners in the discharge of their duties, and describes the symptoms of the disease as follows:—

"The old saying is that 'in dry times all signs fail,' so it is with exudative pleuropneumonia, when it assumes a mild form; when it first appeared at Belmont, and afterwards at North Brookfield, it was in the acute form, and in spite of all treatment run a rapid course; its symptoms were then somewhat uniform—for example, it was ushered in by a short, dry, husky cough, and the animal on being urged to move showed symptoms of distress; the respirations were accelerated; the pulse quick and wiry; the animal dull and listless; the bowels constipated; the milk decreased in quantity and of a yellow tinge, and the appetite not so good as usual.

Now the disease has assumed a milder form, being modified by passing through the systems of various herds, consequently the 'signs fail,' yet let the disease be in ever so mild a form the creature shows unthriftiness, appears dull and has a languid

look; the hair in some parts of the body stands on end; the respirations are quickened, as well as the pulse; yet the appetite is not impaired, in fact there is no complaint made about an animal's appetite except when the disease commences in the form of pleurisy, in which case very little food is eaten, and if the animal be pressed in the spaces between the ribs it shows signs of pain. It will generally be found that in the acute stage there is considerable tenderness all along the spine, and the moment a person's hand is placed in that vicinity the affected creature will shrink. The horns and extremities are alternately hot and cold; urine dark colored and scanty; fæces darker than usual. Yet when the disease takes on the incipient form, the work of destruction goes on in so mild a manner that it eludes detection, until auscultation or percussion reveals it."

THE CURCULIO.

Every one knows that it is with great difficulty that a good crop of plums, at one time so easily and plentifully produced, can now be obtained in almost any part of Western Canada, owing to the ravages of the Curculio.

So soon as the fruit is fairly set—while the trees are yet in blossom—the curculio commences its attacks by making a crescent-shaped wound in the fruit, into which it deposits one or two eggs.

These eggs soon hatch into small grubs, which eat the pulp and seed, and soon cause the fruit to drop off from the tree. The grub now crawls out of the decayed fallen fruit, and burrows in the ground, where it soon passes through another transformation, and comes out another curculio to follow up the work of devastation and death that was commenced by the parent.

These insects continue to prey upon the fruit all through the season—there being this difference, that when the fruit approaches maturity and the stone or pit becomes hard, the injury done does not cause the premature fall of the fruit, but the ripened fruit will be much injured by the working of the grub inside of the delicious pulp.

We have seen many remedies proposed for the mischief, but the only really reliable one yet discovered appears to be that of shaking the insect off the tree, and despatching him there and then.

The curculio will, if surprised by a sudden jar or the like, instantly curl up his legs and fall as if dead, and thus he will remain for some time like an inanimate speck of dust. In order, therefore, to dislodge him from your trees, lay a sheet or other cloth under the tree, and with a mallet or hammer, covered with cloth to prevent bruising the bark, give sudden raps upon the limb so as to jar it, when the little rascal, true to instinct, will curl up and fall upon the cloth, from which he may be taken and crushed between the forefinger and thumb, or thrown into a vessel of hot water, or into the fire.

There are several contrivances recommended for facilitating the work of catching the animal. One is that of a large umbrella, made expressly for the purpose, with a slit in one side to admit the trunk of the tree. This is placed under the tree in an inverted position, when the tree is jarred, and the umbrella then immediately closed, by which the insects which have been shaken down, are all collected in the top of the umbrella, and emptied into the vessel of hot water. Another plan is to have a pair of large sheets stretched upon frames, and connected at the centre and one end by hinges. These are placed under the tree and used in nearly the same way as the umbrella, being closed quickly after the jarring, and the insects thus readily collected together and destroyed. But probably for a few trees the simple sheet, or two or three of them, are quite as good as any more complicated contrivance. The work should be done every morning, from the time of the setting of the fruit, and persevered in faithfully for at least six weeks. This may seem a great deal of trouble, but it does not take much time, and we do not think that any one would consider his labor thrown away when he found himself rewarded in autumn, with a plentiful crop of sound delicious plums. We know of no other plan by which that result can be depended upon where the curculio is established.

A correspondent of the *Michigan Farmer* writes on this subject as follows:—

"One thing more in regard to raising plums. I have raised a good crop of plums

annually. I tried a number of modes, and do not know in which I have succeeded. I usually put my leached ashes around my trees, and in the spring I wash them in strong brine and let it run down well around the roots of the trees. And as soon as the brine dries off, whitewash them well. And about the time the plumbs set, tie a cloth around the body of the tree to form a ring, and keep it well wet with soft soap. The ring of soap is merely to keep any curculio or other insect from going up the tree. Then shake or jar the tree thoroughly two or three times a week early in the morning, until the plums are half or two-thirds grown. In that way I have always succeeded in raising choice plums without injuring my trees."

AGRICULTURAL STATISTICS.

We gave some extracts in our last issue from Mr. Hutton's valuable Report to the Legislature of the returns received from Counties in reply to the Circulars of Agricultural queries sent out. We cannot of course place strict confidence in the correctness of the averages given. The number of returns received is too few. With the best intentions, and the most faithful painstaking, the judgment of one or two, or half a dozen individuals in a large county, could scarcely be depended upon to furnish a very close estimate of the average crop. Still, the returns may be considered as affording a probable approximation to the truth. We should think the averages on the whole somewhat overstated, but the great superiority of the crop over that of the preceding year, except in a very few localities, is readily admitted by all. These returns are highly interesting, as placing before the reader in a condensed form, the producing capabilities of the different parts of the country, together with the difficulties which have to be contended with in each. Statistics of this sort are of great value, in many respects, and it is to be regretted that so few persons are to be found who will take sufficient interest in the matter to furnish the information required. As Mr. Hutton remarks :—

"Every means should be taken to convince all classes in the Province that the Census enquiries have no reference to taxation whatever, but are merely to ascertain the true state of the Provincial wealth, so as to record the progress of the Colony, and, at all times, to compare her present with what has been her former and what may be her future position, and also her relative position as compared with other countries.

"People are slow to see that questions relative to themselves and their households can have any bearing on the general good, and forget that in accounts of large numbers the individual is wholly lost sight of in the average; but that the average can only be ascertained by an accurate knowledge of all that pertains to the individual."

We give some further extracts from the Report below :—

FLAX.

In Canada the soil and climate are both suited for this crop, and there is abundance of water to allow of it being water-rotted, which is much superior to dew-rotting and produces much better quality of flax. Full particulars of method of cultivation and process of steeping were furnished to the Board of Agriculture in Toronto by this Department, and are to be found in the Canadian Agriculturist of February and March, 1860.

The Returns in Lower Canada all report that the cultivation of this crop is not on the increase. A very little is grown by many, and manufactured entirely by the hand for domestic use. There is no machinery for scutching or dressing; one returns the produce as 200 lbs. of Flax and 600 lbs. of seed per acre; another gives 125 lbs. of prepared Flax and 12 bushels per acre of seed; another gives 150 lbs. of Flax and 9 bushels of seed per acre. This crop would be a very profitable one if machinery was available for scutching and preparing; and it would be well for Agricultural Societies to offer a handsome premium for the introduction of a moveable machine for rendering the crop marketable.

It is stated that 60 tons of Flax were prepared this last season in the County of Waterloo, and about 6,000 bushels of Flax Seed produced there. The value has not yet been fully ascertained, but Flax is now worth, in England, from $300 to $350 per ton. Mr. Hespeler, it is said, is about to erect a mill in this County. A portion of a letter addressed to the "Free Press," by Mr. Godfrey of Deleware, is subjoined. He says :—

"Had I been sure of obtaining a sufficient quantity of Flax for the English market, I as well as other agents in the Colony, could have obtained orders to some thousands of tons. The price is now from £60 to £70, sterling, per ton in England. I have seen some specimens of growing Flax, unfortunately in but small patches, equal to that grown in Ireland or on the Continent. I intend to forward samples of the Lint to my mercantile friends in England, and would invite growers to send some specimens to me—P.O. Lambeth, late Junction, Westminster, near London, C.W."

SHEEP.

The whole 72 Reports from Upper Canada are unanimous in stating that the numbers of Sheep kept is very much increased, and that both fleeces and carcasses are heavier than in 1851, and, with 10 exceptions, approving of the Cotswolds; 4 are in favor of Southdowns, and 2 in favor of Merinos and Cheviots. All recommend the Leicester Sheep as being very profitable. The actual weight of carcass is given per quarter as 17 lbs., and that of fleece 4 lbs. 8 oz. The number kept on each 100 acres varies from 20 to 40—one only stating the number at 16, and one making it 70. The average (not including these) is 26 for every 100 acres, which must be understood to refer to old and long cultivated farms, and the queries having been sent to the most prominent farmers in each county. According to the census of 1852, there were 10 Sheep to every 100 acres of occupied land in Upper Canada, and the weight of fleece was only 2 lbs. 18 oz; so that the improvement in the number and quality of Sheep must be very considerable. Taking the number of Sheep to bear the same proportion to the population that they did in 1852, viz: 9 Sheep for every 10 inhabitants, and calculating the average weight of fleece at 3½ lbs. for all Canada, we would have 2,592,000 Sheep, and 9,072,000 lbs. of Wool, as the produce of this last year, a very important item in raw material for Canadian manufacturers, if it were retained in the Colony. But the Trade Returns of 1858 show an export to the United States of 1,545,412 lbs. at 22½ cents per lb., against an import of 224,624 lbs. at 20½ cents; and the Returns of 1859 show an export of 1,630,531 lbs. against an import of 121,830 lbs. In round numbers our net export of Wool was 1,500,000 of lbs., whilst the export of the United States was only 951,938 lbs., shewing how much more extensive must be their home manufacture of this important staple. The Official Returns of the United States, taken from the Journal of the Society of Arts, show that the whole Union possessed in 1859, 30,000,000 of Sheep and 75,000,000 lbs. of Wool, making the average 2½ lbs. per fleece,—very many of their Sheep being Merinoes, will account for this low estimate of the weight of fleece.

Several new woollen factories have been established in Canada within the last year, and the home manufacture of Woollen Goods will, without doubt, continue to increase to a great extent. The average price of Wool given in the Returns is 24 cents per lb., and it may be of importance to know that the supply is so large as to induce others to embark in the manufacture of Woollen Fabrics. Upper and Lower Canada are both specially adapted to the growth of Wool. The climate is very similar to that of Switzerland, where large flocks of Sheep are successfully kept with fair remuneration.

In Lower Canada the Returns show a very great improvement, both in the quality of Sheep and weight of fleece, and also in the number kept on each occupied 100 acres. Five farmers report as many as 30—one 27—four report 25, and the rest from 11 to 20; and the weight of fleece is given from 2 to 7 lbs., averaging on all the returns the large weight of 4 lbs. to the fleece. I have, however, taken 3½ lb. as the general average.

Correspondence.

THE TORONTO NURSERIES AND GRAPES.

To the Editors of the Agriculturist.

Having occasion lately to visit some of the nurseries about Toronto, it may not be amiss for me to drop a hint or two upon some points not unseasonable at the present time. Leaving home at half-past 3, a. m., by the early train, I arrived at the nursery of Mr. Leslie a little after five. As gardeners never sleep after sunrise, I felt sure of finding Mr. L. about his premises even then. It happened, however, that he was in the farther part of his grounds, and thus I was left to take a quiet stroll through them. Be sure that it was an hour of exquisite enjoyment. The sun had risen—not in fiery splendor, betokening a burning day, but with that mild radiance, very common at this season. The air was soft and balmy, and so reviving; the trees laden with blossoms, filled the air with their delightful fragrance, and the numerous birds

carrolled their morning hymns, and evidenced their pleasure in skipping from branch to branch; the cherry-bird was busy feasting; the robin engaged in song, and the humming-bird in extracting his honied morning meal, as he visits flower after flower. Altogether, the scene was one which could not fail to freshen and delight. But when the sweet music of the distant bells, ringing their morning peal, at last broke softly on the ear, the cup of innocent and purest enjoyment seemed full. I could not but think how common might be scenes like these, in this highly favored land, if the proprietors of farms were not as content as in the main they are, with houses (so called) almost bare of tree, shrub or flower, but would venture on a little expense and some trouble. What homes of peace,—what scenes of quiet beauty might be not as now, so rare, but common. But, said one to me when urging him to plant a few trees to relieve the nakedness of his dwelling, "We had ado enow, and trouble enow to get them down." And so it must be left for the rising generation to do what the passing one is averse to. Yet in passing, let us do honor to the men who, by their courageous toil, have prepared the way for converting the wilderness into the fruitful field, and the wild waste of nature into a garden. It remains for us to complete their work. Two or three acres of grass, a few ornamental trees and shrubs would create a wondrous change in the appearance of many a place now so bare. Or if the merely ornamental be eschewed by the working farmer, those which combine the profitable with the ornamental may be chosen. Take, for instance, some of the choice kinds of cherries, the Bigarreaus and the Black Hearts,—these form trees vigorous, erect and beautiful. The gray bark too, of some would afford pleasing contrasts,—and as to the fruit, who needs to be told what a choice morsel a Yellow Spanish, or Cleveland Bigarreau, or Tradescant Black Heart Cherry is? I observed that Mr. L. has a large assortment of ornamental trees. Having inspected the grounds and propagating houses—not forgetting the grape-vines in pots, of which I shall say more presently, I left and proceeded to the young nursery of Mr. J. Gray, on the opposite side of the city; and here, at the very entrance, I was met with striking proofs of Mr. G's skill in pruning the dwarf pear. Some of the trees were pyramids of beauty—most pleasing pictures, from six to eight feet in height, admirably trained, they were one mass of blossom. I could not but wonder that some about the city had not coveted these real treasures. It would be difficult to price them too highly. Mr. G. has a large stock of pears dwarfed upon the quince, in the pruning and training of which he bestows great pains and evidently understands the matter. My time being nearly expired, I could not inspect his vines. Of these he has a fine lot, and it is these, and those Dianas at Mr. Leslies, which have been my chief motive in penning this communication. Many are regretting that they have allowed the season to pass without planting a vine or two; but it is an omission which it is not too late yet to supply. Any of those vines in pots, may now be turned out, and a good growth obtained. The White and Dutch Sweet water, the Pitmaston White Cluster and Royal Muscadine, are good for the open air in sheltered spots. And very fine plants of these Mr. Gray has grown from eyes of this Spring's setting. And no doubt it will be deemed a kindness by many of your readers to be told where to get such things at a small price. The Diana, of which as I before remarked, Mr. Leslie has a good supply, is no doubt, taking all things into consideration, the very best hardy grape we have. Bissel of Rochester says, that in six years it has never been injured by frost. It is very hardy and ripens much earlier than the Isabella. It is a very beautiful grape. The bunches are regularly conic in form, large, very compact and heavy. The color is a fine reddish lilac, thickly covered with bloom. The fruit, when fully ripe, abounds in fine rich juice, vinous and aromatic. The vine is exceedingly productive and vigorous. Mr. Charles Downing says, "Its fine qualities will surprise those who have only been acquainted with the Isabella and Catawba." Lose no time then in planting. Procrastination is a great evil in gardening, as in all things else.

June, 1860. Clericus.

ON PIGS.

Editors Agriculturist, — On looking over your publication for this month, I find an article on ringing Pigs which is very good, and it occurred to me I would write a few lines respecting the porcine tribe. I would draw the attention of our farmers to the fact that a great many hogs find their way to market that have not been castrated till within a few weeks of being killed. This is very bad management, as the pork is very much depreciated in value and I cannot see that the farmer gains by

it in any way at all. I would also particularly recommend our farmers to have their sow pigs spayed. Those they do not intend to breed from will fatten much quicker, and I am sure make as good pork as a barrow pig. To prove the truth of my remarks I need only refer you to England where every pig is castrated at a very early day, except those they intend to breed from. My first suggestion needs no comment, it commends itself to every one possessing common sense.

A Subscriber.

Toronto, June 1860.

THE CROPS ABOUT COBOURG.

[The letter from which we make the following extracts came to hand too late for our last issue.]

Editors Agriculturist, — Our crops have been got all in in excellent condition. Indeed I think I never saw the ground in finer order than it has been this spring. All spring crops are looking well. The fine rains of last week were very beneficial. There is little fall wheat around here, and in the back parts of the Township much had to be ploughed up and the ground sown with spring wheat.

Our early sown carrots and mangels are coming up. Turnips not sown yet. Large quantities of newly seeded clover had to be ploughed up, as the seeds were winter killed, so that hay will not be a large crop, even if what is left should turn out well.

I have much pleasure in noticing your great improvement in the punctual coming out of the *Agriculturist*. I have no doubt that it will be greatly for the interest of the paper. I have so often complained on this point that it gives me the more pleasure to notice the change for the better.

I may notice, as a mark of the goodness of the spring, that I had some rye fairly headed out on the 17th of May. It was from some seed that had been amongst some Kentucky seed wheat I got last fall.

Cobourg, May 28, 1860.

ONION MAGGOTS.

To the Editor of the Agriculturist.

Are you aware of any remedy against the ravages of the above pests. I have several beds of fine young onions that are now gradually yielding up the ghost under their deadly attack. Last year I suffered in similar manner, as did hundreds of others in this locality. We have tried salt, soot, and lime, but to no purpose. If you can furnish a remedy you will ensure the gratitude of a large number of your subscribers.

W. Ellis.

Prescott, June, 1850.

[The remedy for the onion maggot is to sow the onions upon rich stiff clay soil. There is no other that we know of that can be depended upon. There is no nostrum or specific sufficiently powerful to kill the maggot that would not destroy the onions also. In a strong clay soil the fly cannot get under the root of the onion to effect the mischief as it can in sandy or loamy soil. If clay soil cannot be had, select the strongest soil available, and tramp it down as hard as possible before sowing. We are assured by experienced gardeners in this city that after they have found it useless to attempt growing onions on their light soils on account of the attacks of the maggot, they have succeeded perfectly on the strong clay soils.]

ALSIKE CLOVER.

Mr. Editor,—Will you or some of your correspondents inform me what is the proper time to cut Alsike Clover, if intended for seed; and also the time when intended for hay? W. A. C.

Ancaster, June, 1860.

Agricultural Intelligence.

Lower Canada Exhibition.—We learn from the Montreal *Farmers' Journal* that the Board of Agriculture of Lower Canada have decided to hold their exhibition for this year at Quebec. The following resolutions were adopted by the Board at a recent meeting :—

"That the Board of Agriculture after having taken into consideration the propositions of the Board of Arts and Manufactures relative to the holding of a Provincial Agricultural and Industrial Exhibition at Montreal, at the occasion of the visit of the Prince Royal, are of opinion that the ground is not convenient and proper for the arrangements of the Agricultural Exhibition in contemplation. Considering besides, the offers of the Board of Arts burdensome to the Board of Agriculture, they feel that they will be unable to co-operate in the approaching Exhibition with the Board of Arts and Manufactures.

"That considering the inability of the committee to come to an arrangement with

the Board of Arts for the holding of the approaching Exhibition, this Board accepts the offers of the Corporation of Quebec for holding there a Provincial Agricultural Exhibition on the occasion of the visit of the Prince Royal.

Tornado.—A fearful tornado swept over portions of the township of King and Whitchurch on the 25th May last, demolishing or greatly damaging a large number of dwelling houses, barns and other farm buildings; also doing great injury to the timbered lands. Mr. St. George, residing in Whitchurch, sustained damages to his buildings estimated at $2500. A very destructive tornado took place in the Western States about the same time, causing great loss of life, and damage to property. It is somewhat singular that these terrific bursts of wind have occurred for several years at about the same date.

European Agricultural Exhibitions.—The great French National Agricultural Exhibition will be held this year in Paris, June 17th to 23d. The Royal Agricultural Society of England, at Canterbury, July 9th to 12th. The Royal Agricultural Improvement Society of Ireland, at Cork, July 25th to 27th. The Highland and Agricultural Society of Scotland, at Dumfries, August 1st to 3rd.

Horticultural.

The Horticultural Societies have opened their Exhibition season very successfully this year. The Hamilton Society held their show on the Queen's Birthday. It was a benefit exhibition, intended to relieve the Society from some financial encumbrances, the prizes being mere honorary awards. The gardeners and amateurs contributed of their products very spiritedly, to make up the show, and as the public patronized it liberally, there was quite a handsome amount realized, which will assist the Society materially in their operations. The show was particularly strong in fuchsias and geraniums, some of the former being of the extraordinary height of fourteen feet, covered with flowers from base to summit, and some of the latter four feet through, so trained as completely to conceal the pots, and presenting a magnificent mass of foliage and flowers. There was a good general show, although not a very great variety, of other sorts of flowers, and considering the earliness of the season a fair display of vegetables. In Toronto, on the 7th inst., the general display was better than ever before at the Spring show, particularly in flowers. Although particular specimens of fuchsias or geraniums were not so imposing as at Hamilton, there was a greater variety and a larger number of rare plants. The specimens of fuchsias, geraniums and hybrid perpetual roses were numerous and very fine, and there was a good collection of hardy flowering shrubs. The show of vegetables and fruit was good for the season but not very large. There were a few specimens of winter apples, good of their kind, but not well kept. The exhibiters might with advantage take a hint from some of the fruit stalls in our streets, where we can any day buy apples in a much better state of preservation. We must, however make allowance for the very bad fruit season of last year; otherwise no doubt the exhibition would have been much larger and better in this respect. Some remarks were made by speakers at the Toronto show which we cordially endorse, to the effect that farmers would derive much benefit from a greatly increased attention to the study and practice of horticulture in addition to their agricultural operations.—Nothing would do more to soften and refine and render agreeable the too often somewhat hard and unattractive surroundings of the farm house.

We confine our memoranda this number chiefly to the Flower and Ornamental department of the garden. The *Gardener's Monthly*, published at Philadelphia by Thos. Meehan, gives us the following leading hints:—

"June, the month of Roses, having arrived, the preparations of the past six months ought to be now bearing their harvest of enjoyment to the proprietor. And to return to the Rose—the queen, or the empress, or rather the most perfect; the true woman of all flowers—no care that

can be bestowed upon it will be a fair recompense for its matchless beauty and loveliness. The Summer or June Roses are not so much cultivated since the many fine kinds of perpetuals have come into existence; but these, in order to derive from them all the beauty they are capable of affording, must have a special treatment. As soon as the first flowers are fairly faded, they should be cut off several buds below the flower; from the shoots which will then be encouraged to push from the remaining buds a very free bloom will be received some weeks afterwards.

"Every opportunity will, of course, be taken to keep down the weeds. As soon as they are barely visible, the ground should be hoed over lightly, and the surface afterwards broken fine and smoothed over with the back of a small rake. This not only gives a neat and cared-for appearance to the flower beds; but the free admission of air, which a thorough pulverization of the surface-soil effects, is one of the best means of keeping the soil from drying out, and thus avoiding the necessity of frequent waterings, which, though they cannot at times be avoided, have always attendant disadvantages. Should soil so finely raked appear to "bake,"—that is, form a crust on the surface—after heavy rains, all you have to do is to hoe and rake it over again. It will be anything but labor lost on your flowers."

The following more detailed directions are from Saxton's American edition of the excellent little book "Every Lady her own Flower Gardener," and are quite applicable at this season:—

"Propagate carnations by layers and pipings. Propagate double sweet-williams and pinks by layers and cuttings, or slips.

Propagate perennial fibrous-rooted plants by cuttings of the stalks.

Transplant the large annuals from the seedling bed to the places where they are to remain. Let this be done in showery weather, if possible.

Water the delicate plants, if the weather proves dry: give a moderate watering every evening, but never in the heat of the day.

Sow yet some hardy annuals, such as ten-week stocks, virgin stock, &c.

Plant out China-asters, Chinese hollyhocks, ten-week stocks, large convolvolus, &c., but let each root have a ball of earth round it.

Examine the perennial and biennial plants, to cut off all dead, broken, or decaying shoots. Trim the African and French marigolds from their lower straggling shoots, that they may present a neat, upright appearance. Trim the chrysanthemums, which are apt to branch too near the root, and stake them neatly.

Place out carnations and pink seedlings into their proper places.

Keep everything just moderately moist, if there is a long drought in this month."

Flowering and Ornamental Shrubs.—We take some general introductory remarks on shrubs, which are so necessary a complement of the well-stocked flower garden, from *Bridgeman's Young Gardener's Assistant*, and will furnish more detailed information on another occasion:

"Shrubs are so closely connected with flowering plants, and, indeed, so many of them are embellished with flowers, that they may be considered as essential to the completion of an ornamental garden. They are all Perennial, and are divided into two classes, deciduous and evergreen; the former lose their leaves in the winter, the latter only shed them when others are ready to supply their places.

"Shrubs are not only necessary to the embellishment of a flower garden, but many kinds are eligible for hedges to it, and may be planted at a trifling expense. These hedges should be frequently trimmed and trained, the sides cut even and the tops sparingly clipped, so as to make them ornamental as well as useful, and also to increase the vigour of their growth. When hedges become open or naked at the bottom, they should be plashed down; this is done by cutting the branches half through near the ground; they will then bend easily, and may be interwoven with the adjoining branches.

"When shrubs, creepers, or climbers, are planted against walls or trellises, either on account of their rarity, delicacy, or to conceal a rough fence, or other unsightly object, they require different modes of training; some attach themselves naturally as the Ivy, and merely require to be occasionally guided, so as to cause a regular distribution of their shoots; others must be treated like fruit trees, trained thinly, if blossoms are the object, and rather thick, if the intention be to show the foliage to the greatest possible advantage.

"Ornamental shrubs grow from one foot to twelve or more feet in height, and where each are planted for ornament, the height of each plant, when full grown,

should be considered, and also the mode of growth, that every one may be so planted as to show to advantage, observing that the tall-growing kinds should be planted in the back part of the borders, and those of low growth in front; but if they are required to be planted in clumps, they should be so arranged as to rise gradually from the sides to the middle, and be afterwards neatly trimmed.

"Shrubs require an annual pruning, at which time, cut out all irregular and superfluous branches, and head down such as require it, forming them into handsome bushes. Apply stakes to such as need support, and see that the low-growing ones do not injure each other, or interfere with other dwarfish plants near them." J. F.

On the Culture of Celery.—There is not a better and more wholesome vegetable in the garden than celery, and it is easily raised provided the plants are obtained early in the season. The seed should be sown on a moderate hot-bed in March, and to admit of it forming good roots, the depth of rich mould over the manure should be at least three inches. In order to have the plants strong and well furnished, they should be transplanted into a cold frame, and rich compost, after they have made six leaves, but as this process delays the growth of the plants considerably, it should not be resorted to except they have been started early. We have raised a thousand plants in a hot-bed from ¼ ounce of seed.

In order to produce celery of superior quality, a compost should be prepared in the beginning of spring, of rich swamp muck or leaf mould and the decayed manure of an old hot-bed or any other rich well-rotted dung. Celery is a marsh plant and delights in a light moory soil. When the plants are strong enough to put out, trenches should be dug at least one foot deeper, fifteen inches wide and five or six feet asunder, and nearly filled with this well prepared compost, a portion of the best of the soil which has been removed from the trench may be mixed with the compost, and the garden rake used to pulverise and prepare the place for the reception of the plants. In doing all this, the gardener should be careful not to tramp the compost in the trenches, he should stand in the intervals, and use a line to direct him in puting in the plants.

The best time for transplanting celery is when the ground is moist after a sunny shower, and the roots and tops should be shortened if they happen to be long and straggling, when they have been transplanted before the final setting out, or raised very far apart in the bed, a transplanting trowel may be used, and a ball taken up with each plant. The best celery we have ever raised was planted between every second row of peas. The peas shaded the young plants from the sun, and when they were used up and removed, the drills of celery stood six feet asunder, and all the soil in the intervals was from time to time piled up around the plants in order to blanch them. It is not a good plan to keep them molded up very high while they are in a growing state. It is better to let them have a good start, and when they have grown to a large size, to apply a considerable quantity of mould at once, taking care that a moderately dry day is chosen for the operation, and that the leaves are all collected and kept close together. When the moulding is done while the soil is wet and clammy, the plants are apt to be injured by a kind of rust and also to be eaten by worms. We have raised celery in drills four feet asunder and the plants six inches apart in the drills, but if it is required to be very large, the drills must be farther asunder. We notice that a New York gardener professes to have discovered a method of making celery grow in winter.—*Boston Cultivator.*

Editorial Notices, &c.

To County Societies.—Treasurers of County Societies who have not yet done so, should now send in their affidavits of the amount of subscription in their hands to the Secretary of the Board of Agriculture, Toronto, without delay, so that the proper proceedings may be taken to obtain the legislative grant.

Our July Number.—With our next number we shall introduce a slight alteration and improvement in the appearance of the *Agriculturist.* We shall widen the columns a little, by which the amount of reading matter in each number will be increased as much as 4 pages of the present size, although the difference will not appear nearly so much to the eye. At the same time we shall commence printing the Transactions in double column, the same as the journal, amalgamating the two depart-

ments of the paper in fact into one combined work, paged continuously. The Transactions have heretofore been printed as a separate work, for certain economic and other reasons, and the pages in the present number form the concluding pages of the Fourth Volume so printed separately. For the future we have decided that in the copies issued to subscribers it will be more convenient to embody the Journal and Transactions in the same pages, having no other separation than the distinction of different headings. A certain number of official copies of the Transactions will afterwards be worked off separately for binding.

The Number of 1st July, will therefore commence what may be called a new series of the *Agriculturist*, and it will make a very good point for new subscribers to commence from. The price of the paper from 1st July to the end of the year, 12 numbers of 32 pages each, in all equal to a volume of 384 pages, will be only 25 cts., and one additional copy will be given as a bonus with every eight ordered and paid for in advance, being 9 copies for $2. This is certainly cheap enough for any one. We hope that our friends throughout the country will induce a large number of new subscribers to take the paper on trial for the half year.

To Secretaries of Societies.—We were obliged in the beginning of the year to make use of our list of officers of the Societies of last year in sending the free copies of the *Agriculturist*, and as we did not obtain complete lists of officers of the present year till recently, we have continued sending from the old list to the present time. With our next number, however, we shall commence sending from the lists of this year. There may perhaps be a few changes, which will be explained by this note.

The Board of Agriculture.—A meeting of the Board of Agriculture will be held in Hamilton on Tuesday, 19th inst., at noon, at the Royal Hotel, to make the necessary arrangements for the approaching Provincial Exhibition.

Trial of Reaping and Mowing Machines.—The West Riding of the County of Durham Agricultural Society will hold their usual Annual Trial of combined or separate Mowing and Reaping Machines this season. The Mowing will be done some time this month; we are not informed of the exact day, but due notice will be given. The Reaping Trial will take place as soon as the fields are ready, open to all machines manufactured in the Province. The object of these matches is not so much the amount of prizes, as to give farmers an opportunity of seeing the machines tested, many of them being desirous of purchasing. Further particulars can be obtained from the Secretary.

E. A. McNaughton,
Newcastle.

Blackwood's Edinburgh Magazine for May, 1860.—New York: Leonard Scott & Co.; Toronto: H. Rowsell. This is a capital number of Maga. The articles are: War and Progress in China; Munich and its School of Christian Art; Capt. Speke's Adventures in Somali Land; Judicial Puzzles,—Elizabeth Canning; Wellington's Career, Part II.; The Mill on the Floss; A Feuilleton; Switzerland and the French Annexation. Price of Blackwood $3 a year. Blackwood and any one of the four Reviews, $5. The Four Reviews and Blackwood, $10.

The London Quarterly Review, for April 1860. New York, Leonard Scott & Co.; Toronto: H. Rowsell. Contents: Labourers' Homes; Souvenirs et correspondance de Madame Récamier; Vicissitudes of Families and other Essays; The Bar of Philadelphia,—Washington's Farewell Address; Miss Nightingale's Notes on Nursing; Fox Hunting; Recollections of Leslie; The Budget and the Reform Bill.

The North British Review for May, 1860. New York: Leonard Scott & Co; Toronto: H. Rowsell. Articles:—Redding's Reminiscences—Thomas Campbell; Quakerism—Past and Present; Sir Henry Lawrence; Australian Ethnology; Poems by Heinrich Heine; Church and State; The Origin of Species; British Lighthouses; The State of Europe; Recent Publications. Price, $3 a year.

Market Intelligence.

TORONTO MARKETS.

MONDAY, June 11, 1860.

There were poor markets to-day, though something better than Mondays generally. Of Fall wheat about 800 bushels changed hands, at prices lower than last week. To-day's sales, however can hardly be taken as a criterion of the state of the markets, though there can be no doubt that prices are lower. Fall wheat sold at from $1 30 to $1 40 per bshl; the average of sales being near the extreme rate. Other articles were scarce and without change. Spring wheat from $1 10 to $1 13 per bshl. Barley 60c. Peas 60c to 65c. Oats 33c. Hay $9 to $15 per ton. Straw from $5 to $7 50 per ton.

BRITISH MARKETS.

(Per Steamer North Briton.)

LIVERPOOL, 30th.—Liverpool breadstuffs generally dull. Wakefield, Nash & Co. report flour dull and steady. Wheat steady; red 10s 3d a 10s 9d; white 11s a 12s 4d. Corn steady, and in more demand. Provisions quiet. Beef dull; quotations barely maintained. Bacon quiet and steady. Lard dull and nominal; 57s for good. Tallow quiet at 54s.

(From the Mark Lane Express.)

LONDON, May 28th.—A week of summer temperature having followed the late fine rain, the rapid progress of vegetation has been everywhere remarkable. Should the same favourable weather continue, neither the hay nor corn crops may be much, if at all, behind the usual period. The Wheat, however, in several localities looks thin, and there have been many complaints of unusual ravages by insects. The losses, too, lately sustained by graziers have brought about such a rise in animal food that cereals must be valuable as substitutes. Although some check has been felt by the forcing temperature, the Wheat trade has for the most part been steady, or prices 1s. higher throughout the country. Ireland is recovering from the effects of the first imports, a large consumption gradually clearing them off; and Scotland, ceasing from the usual shipments southwards, has fully followed the English markets. Prices in the Baltic have little changed, and this has also been the rule with Holland and Belgium. The French markets have rather rallied for Wheat, and given more firmness to the Flour trade in Paris. In Southern Europe the rapid advancement of the crops has influenced prices downwards, as in Spain and Italy. Still, in the latter country stocks are so short, especially of soft Wheat, at Naples, that the languor of Odessa has given place to a brisk demand, and forthcoming supplies have been anticipated to meet the orders received. Whilst Flour has been dull in New York, and slightly lower, there has been an increased demand for Wheat at full prices for export, a good portion being destined to the Northern parts of England.

The arrivals off the coast since 16th inst were 25 cargoes, of which 5 cargoes were Wheat, 11 Barley, 8 Maize, and 1 Rye.

The business reported was as follows; 4 cargoes of Wheat, viz., 3 Odessa Ghirka, at 50s., 50s. 6d, and 53s, and 1 Marianopoli, at 54s; 2 of Maize, at 35s. 7½d. and 38s; 2 of Rye, at 30s to 31s. 6d; and 5 of Barley, at 27s. 6d. to 28s. 6d. per qr.

The sales noted last week were 95,350 qrs., at 52s. 1d., against 91,552 qrs. for the same period in 1859, at 54s. 4d.

The London averages were 52s. 10d. on 2,609 qrs. The imports into the principal ports of Great Britain for the week ending 16th May on Wheat and Flour were equal to 70,776 qrs.

AYRSHIRE CATTLE.—Patrick R. Wright, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale are liberal.

Full Pedigree of all animals—U. C. Stock Register.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten ordered and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, JULY 2, 1860. No. 13.

Hints for July.

Hay cutting will have commenced in many parts of the Province before the first of this month. Clover should be cut as soon as it is fully in blossom and a portion of the blossoms have faded. If left too long the stems of the plant become dry and woody, and the leaves and tops break off and are lost. Clover hay in making should not be exposed too much to the weather. If dried too much it will not be so nutritive, or so much relished by the cattle. A good deal of argument has been expended upon the question of the proper time to cut timothy. Some have contended that the seed should be allowed to ripen, or nearly so, for the sake of its value as food, that this will more than repay for any deterioration in the quality of the stem and leaves, and that the weight of the whole crop will be increased thereby. But experience and observation will show that the same rule will apply to timothy as to clover, viz: that it should be cut when in full blossom. It is at this time that the plant contains the most saccharine matter, before it has been absorbed in the formation of seed, and the hay cut at this time is the sweetest, most nutritious, and most palatable to cattle. Let any one attend an auction sale of hay, and he will find that that which is green colored and succulent looking, will always command a higher price than that that is fully ripened and coarser in appearance, the buyers thus giving the strongest testimony that their experience has shown them the greater value of the early cut hay. Anything that may be lost in weight by early cutting will be made up by the superior quality of the article. Besides, when there is a considerable breadth of meadow to be mown, there is a much better chance of being able to take advantage of favorable weather, and to get the crop secured in good average condition before grain harvest comes on, by commencing a little too soon than a little too late.

Wheat and barley harvest will commence in some parts of the province about the middle of the month. To secure the greatest weight of wheat, the finest quality for flouring purposes, the least amount of bran and offal, the least loss in harvesting, and the best quality of straw for fodder, wheat should be cut before it has got quite out of the milkey state, that is about a week before being fully ripe, and when the straw has turned yellow about half way down the stalk. For seed, perhaps it is better to leave it standing till fully ripe. The efficient machines and implements now manufactured in different parts of the country for harvesting purposes, and coming into pretty general use, enable the farmer to get through the important operations of this busy season much more easily and expeditiously than he could in former times, when all the laborious work of mowing, reaping, raking, &c had to be done by human hands and arms. Those owning large farms and who have not yet provided themselves with mowing and reaping machines, by obtaining such implements from our best makers, would very soon find the

cost returned to them in the saving of labor, the superior execution of the work and the avoidance of waste.

We have heard pretty strong complaints of the depredations of the midge this summer. In some of the western parts of the province it is said to be devouring the wheat almost totally. In fields in the neighbourhood of Toronto, the midge is to be found, but where the wheat was sown early and stood the winter well, not in such quantities as last year. We are of opinion that the reliable remedy for the midge will be found in high farming, clean culture, thorough draining, sowing early, and early kinds of seed. Wheat should not be sown on the same ground more than once in five, six, or seven years. Clay land should be clean and free from weeds or grass, but not made too fine. It should be somewhat rough and cloddy when sown; if old meadow the sods should be thoroughly decomposed, but not too much torn to pieces by over cultivation. If the soil is made too fine the plant is much more apt to be thrown out of the ground by the winter and spring frosts. If it is found that the fall wheat can not be grown by adopting the best systems of cultivation known, then of course the remedy must be to fall back upon spring wheat, sowing the kinds which will mature late, as has been already done with great success in different parts of the province.

There are still some crops which may be sown with advantage during this month. Buckwheat may be sown in the beginning of the month for the grain, and later for ploughing down for manure; if for the latter purpose it should be sown pretty thickly. Chinese millet may be sown for winter fodder or soiling; half a bushel of seed to the acre. Indian corn for soiling. White Turnips may be sown all this month; and the stubble, or six weeks turnip, as late as the middle of August, and produce a valuable crop. The following are a few of the varieties of Turnips which may yet be sown, the seed of any of which, as well as several others, can be obtained of Mr. Fleming and probably other seedsmen of this city. The White Globe, a large root, very productive, fit for fall use. The Yellow Bullock, or Aberdeen, a good producer, keeps well during the winter, excellent for feeding. Yellow Altringham, not quite so large as the Aberdeen, but of excellent quality for the table, and well adapted for market. Waites' Eclipse, a new variety here, yellow, with purple top, grows a large size, very good for feeding purposes. It is a most encouraging evidence of the progress our farmers are making in the improvement of their general system of husbandry, to find the cultivation of turnips and other roots increasing so largely as it has done within a few years. We believe that at least ten times the breadth of root crops is now sown that was sown a few years ago. Mr. Fleming alone, one of the seedsmen of this city, has this year sold over a hundred bushels of Swede turnip seed, not to mention mangels, carrots, white turnips and other varieties.

Put the Cultivator and hand hoe frequently through the drilled crops this month, to stir the ground and keep down the weeds.

The Provincial Exhibition.

The Board of Agriculture held a meeting at Hamilton on the 19th and 20th June, for the purpose of consulting with the Local Committee, and making the necessary arrangements in reference to the approaching exhibition. The preparations were found in a satisfactory state of forwardness, the committee and the contractors having evidently set to work in the most energetic manner. The ground plan of the Crystal Palace was originally in the form of a Greek Cross, the transept being 171 feet in length by 68 in breadth, but it has since been decided to fill in the angles of the lower story, converting it into an octagon of 171 feet diameter, thus adding considerably to the Exhibition space, which will be altogether something more than that of the Building at Toronto. The upper part of the building will preserve the original plan. The building will consist of two stories. The centre of the roof will have an elevation of about 60 feet, and the top of the dome of 128 feet, so that standing as it does on high ground, the palace will present a very commanding appearance. The foundation is of solid stone masonry, and the floors and all of the work of the most substantial character.

The accomodations for the cattle, horses, &c., will be of a better description than at any of our previous shows. There will be about a hundred horse stalls 12 feet by 6, with good plank floors, partitions and double doors. There will be 110 cattle stalls, 100 sheep pens, 80 pig pens, &c. Water will be plentifully supplied from the city

water works to the Palace, and conveyed in troughs or pipes all around the grounds to the horse and cattle stalls.

The area of the Exhibition ground is nearly 20 acres. The surface, being somewhat undulating, will add to the picturesqueness of the Exhibition, and the soil is of a description that will be dry and firm to the foot in any sort of weather. From any part of the grounds a charming view of the surrounding scenery can be obtained. The building is to cost about $21,000, and is contaacted for to be finished on the 1st September. We do not doubt that it will be ready, and that the Exhibition will be one of the best, if not altogether the best, which has yet been held in the Province.

We had hoped to have been able to publish the Prize list in this number. The uncertainty however still attending the visit of His Royal Highness the Prince of Wales, and also the distribution of the special government grant, has prevented the arrangements being positively announced. The list will if possible appear in our next issue. In the mean time, exhibitors can not go far wrong if they take the list of last year for their guidance.

Before leaving Hamilton, the Board of Agriculture were invited to visit the new Water Works of that city. These are works of which not only Hamilton as a city, but Upper Canada as a country may well be proud. For a city of the population and recent growth of Hamilton to construct water works costing nearly £200,000 was certainly a bold undertaking. But the work is now done, and done on a scale which will provide against the necessity of a repetition of the undertaking for generations to come. The admirable manner in which the work has been executed reflects high credit upon the Canadian Engineer, Mr. T. C. Keefer, who designed and superintended it, and the beautiful and immensely powerful machinery by which the water is elevated from Lake Ontario, built by Mr. Gartshore of Dundas, at a cost of about £25,000, shows that we have mechanics in Canada, who need not fear competition in similar work, if they only have equal opportunity afforded them, from any quarter whatever. The beautiful scenery to be found during the drive of six or eight miles in the country, on visiting the works, particularly that from the Mountain, about half way up which the resorvoir is situated, like a small lake, as well as the inspection of the works themselves, renders the excursion a most interesting and agreeable one.

The Massachusetts Cattle Disease.

The farmers of Canada, as well as the public generally, cannot be too much upon the alert against the introduction of this destructive disease. Government ought to be memorialized to adopt precautionary measures to prevent the importation of diseased cattle, or, should the disease unfortunately be introduced, to prevent it spreading. The subject is one of the greatest possible importance. A report was lately circulated that the disease had appeared in Lower Canada, and some cattle were supposed to have died of it in Huntingdon, C. E. There is however every reason to believe that these animals were affected by some other disease than Pleuro-Pneumonia. There is no evidence of the disease having yet appeared in the Province. But without proper precaution it may be introduced at any moment. All experience so far on this continent goes to show that the disease is only propagated by contagion. We have therefore got the prevention and control of it very much in our own hands, and by due precaution and promptitude we may perhaps succeed in keeping it away from our cattle herds. Had the people of Massachusetts understood the nature of the disease at first, and had the Legislature acted with sufficient promptness, it might probably have been controlled and banished at less than a tithe of the cost to the state and to the owners of cattle which will now be incurred. We gave a full history of the progress of the disease in our last. The appropriation by the State Legislature of $10,000 having been found inadequate to its extirpation, an extra session was convened about the beginning of June, and closed on the 13th. Its action upon the subject is embraced in two bills. They give powers to the municipal authorities to kill or isolate cattle and make other regulations for the treatment and extirpation of the pleuro-pneumonia; they increase the State Commission to five members, and provide in addition for a Board of Examiners to make a scientific investigation. To carry into effect all these provisions, an appropriation of $100,000 was made. Of this sum $15,000 are required in addition to $10,000 appropriated at the last session, to pay expenditures already incurred; $10,000 is for the Board of Examiners; leaving $75,000 for other purposes, including the reimburse-

ment to cities and towns of four-fifths of the expenses incurred by them for isolation and killing.

Editorial Correspondence.

(No. 1)

Manchester, June 5th, 1860.

In the midst of the busiest hive of human industry in the world I resume my pen in the service of the *Agriculturist*, and commence by sending a few hurried jottings by the way. As yet I can communicate but little that is agricultural, having seen for the past fortnight scarcely any thing but the broad expanse of the Atlantic; with the exception however of forests of shipping in the vast docks of Liverpool, and innumerable factories and workshops, which so largely contribute to England's wealth and power.

I may commence by observing that I left Toronto by rail on the evening of May 16, and was fortunate in finding in the carriage Mr. John Wade, the President of the Provincial Association, with whom, and some others, interested in agricultural pursuits, a very interesting conversation on these matters was carried on till we arrived at Port Hope. The late William Cobbett, as an agriculturist, was the principal theme; and it is a little curious that within these few days I have heard the merits of the same gentleman in a political point of view highly extolled by several of his personal friends in this neighborhood,—Mr. Cobbett having represented the Borough of Oldham in Parliament for several years; a duty that is now performed by one of his sons. Cobbett had unquestionably a good practical knowledge of farming and gardening as practised in his day; but he was unacquainted with those sciences which suggest new and improved principles and explain old ones. In presenting the world with an improved edition of Tull's System of Husbandry, he rendered an important service to Agriculture. His Rural Rides contain the most graphic descriptions of English scenery and rustic pursuits; but their beauty is unfortunately defaced by the too frequent introduction of political venom and sheer personal abuse, in which Cobbett was as complete a master as he is universally admitted to be in pure Saxon English. As a descriptive agricultural writer he bears no comparison with Arthur Young, from whose tours any one may form a pretty full and correct idea of the state of agriculture in his day, while in vain we look to the writings of Cobbett for satisfactory information on the existing state and various details of farm practice.

I spent Thursday in Montreal, and had an agreeable interview with Mr. Perrault, the zealous Secretary of the Lower Canada Board of Agriculture, and with Mr. Anderson, of the Board of Arts, who also conducts the English edition of the *Journal of Agriculture*. Great preparations were making for the reception of the Prince of Wales, and an extensive Exhibition Building, I observed, was in the course of erection. Let us hope that all will cordially unite their efforts to make the inauguration of that stupendous Bridge worthy of the occasion.

In travelling from Montreal to Quebec, I fell in with a party who was going to examine the country about Acton, where it is said copper ore exists in considerable purity and abundance. It is a little curious that one of the party proposed a theory similar to that of Jethro Tull, which we had been discussing last evening, in connection with the name of Cobbett. He stoutly maintained that all the organic food which plants require can be obtained from the atmosphere, and that the soil requires no manure, but simply deep and clean cultivation. The latter condition, by the bye, seldom obtains in American agriculture. It is a pity to find so many adhering to the errors of Tull, after he, by riper observation and experience, had renounced them.

Friday, I spent in Quebec, and found the Legislature about drawing its proceedings to a close. Mr. Hutton, of the department of Agriculture and Statistics, kindly furnished me with a quantity of reports, essays, &c., relative to the condition of Canada, and its advantages as a field for immigration: matters to which my attention has been already drawn by numerous individuals.

On the morning of the 19th, I set sail in the *Bohemian*, Captain Greaves, Commander. The rain poured down in torrents, and continued more or less till we reached the Gulf, thus unfortunately obscuring the beautiful and striking scenery of this magnificent river. In the Lower Province, rain was much wanted, as the crops were suffering severely from drought, and fodder had for some time been exhausted. The voyage across the Atlantic is usually monotonous; seldom affording any incidents of general interest. After encountering almost continuous head-winds

and rainy weather, we made the Cove of Cork, the most delightful spot I ever saw, on the 30th, and reached Liverpool on the morning of Friday, June 1st. It is not a little singular that thirteen years ago this very day I left with my family this port for Canada! In again setting my foot on the shores of dear old England, a crowd of thoughts rushed into the mind; among them, I trust, a deep feeling of gratitude to that Providence, which is over all for good. I think it but right to remark that Captain Greaves is an able and cautious commander, and with his officers, maintains in a quiet and easy manner the most perfect order and discipline. I did not hear a single oath uttered during the whole of the passage. This line of steam ships is a credit, as it will no doubt be highly useful to Canada.

After getting clear of the ship, I proceeded to the central meat and vegetable market. Owing to the excessively hard winter and late spring, both meat and vegetables are scarce and dear. Beef and mutton fetch from 9d. to 11d. per lb., and what I saw was not of the best quality. Spring Cabbages very small and dear. New potatoes 3d. per lb.; some of good size from Portugal, but those of English growth were not larger than walnuts. It is expected that with more genial weather the markets will be better supplied and that prices will diminish. Bread is by far the cheapest necessary of life.

As I was examining some Hereford steers and Leicester sheep opposite St. George's Hall, (of the latter I have seen superior in the Toronto markets) a fellow passenger called my attention to a performance that was about to take place on the great organ in this magnificent structure. I accordingly went in, but regret my want of ability and space to convey by words any intelligible idea of what I saw and heard. This noble building contains the Law Courts, Library, and sundry other apartments, and its architecture and decorations are most elaborate and striking. The central hall is nearly two hundred feet long and one hundred wide. The grand organ was constructed under the direction of Dr. Wesley, and is said to be twice the size of the famous organ of Haarlem. It possesses eight thousand pipes, ranging from three-eighths of an inch to thirty-two feet in length, with a compass of ten octaves. It contains, in fact, five organs, the great, the pedal, the solo, the swell, and the choir, and has upwards of a hundred stops. With such an instrument played by the best performer in England, Mr. Best, the effect produced is indescribable. I felt that I was in quite another world than that in which I had lived and moved during the past fortnight. This being Whitsun-week, the great holiday week of all Lancashire, the Hall was densely crowded with country people of all ages, chiefly, I was glad to see, of the working classes. What a privilege and means of mental and spiritual elevation to hear in such a place, by such a performer, on such an instrument, a selection from the best works of Weber, Bishop, Haydn, and Handel! and all this for three pence each person! How rich in means is England for elevating the masses of her teeming population. Yet I grieve to say that scarcely had I got beyond the hearing of these devotional and soul inspiring tones, than I witnessed a scene that but too frequently disgraces the civilization of our modern cities. What an anomaly is man, that he should disgrace by vile passion the image in which he is created!

Something about agricultural matters, I hope, in my next.

G. B.

[No. 2.]

Benenden, Kent, June 12, 1860.

In travelling from Liverpool to Manchester, a distance of 32 miles, in one hour, but little opportunity is afforded for making agricultural observations. I was struck by the backwardness and generally unfavorable appearance of the crops. The land lying on the new red sandstone formation is warmer and drier than the clays resting on the low measures, where in consequence of the unusual amount of wet and cold, all kinds of crops were looking yellow and sickly. On Chatmoss there is a large area yet to be reclaimed, and the general appearance of this densely peopled district indicates that capital is wont to flow more freely into the channels of commerce and manufactures than into agriculture; a circumstance on many accounts to be regretted. It takes a series of years to bring this moss land into a proper state of cultivation. Large open ditches have first to be cut, which carry off an immense amount of water in the course of two or three years, and the moss slowly sinks and consolidates. Afterwards the draining has to be increased and perfected, the surface heavily dressed with marl and quick lime; the former being found in certain parts of the moss at depths varying from a dozen to twenty or more feet. This land when well managed will produce heavy crops of potatoes, turnips, clover, &c.; oats also do well, but for wheat it is indifferent, yielding a large amount

of straw, with thin and scanty grain. I knew Chatmoss before the railway, which now runs across it longitudinally, was made, or a single improvement commenced. The present appearance of the reclaimed portions is certainly striking and agreeable, indicating the triumphs of agricultural skill and industry during the last quarter of a century. Large dairies are kept in this district for supplying Liverpool, Manchester and contiguous towns with milk and butter; the former being regularly sent many miles night and morning, by rail, and is retailed to the consumer at three pence a quart. The time is fast approaching when Toronto will have to adopt a similar plan, and draw her supply of milk from a much larger area than at present.

In Manchester I found extraordinary improvements both in the increase and general appearance of the city, and the machinery of its innumerable factories and workshops. Its well paved and efficiently drained streets, the cleanly manner in which they are kept, and the consumption of smoke in the tall chimnies of its manufactories, render Manchester, notwithstanding the immense annual increase of its population, a far healthier and more desirable place of residence than it was twenty or thirty years ago. The demand for agricultural productions by the now well paid toiling millions of this interesting and wealthy district is immense; clearly indicating the intimate relation and mutual interests between the field and the factory. What a change has come over the views and feelings of the people of these nations since the repeal of the corn laws! Before, the agricultural and manufacturing interests were arrayed in deadly opposition, and in all the great centres of population the most levelling and democratic doctrines were proclaimed, with occasionally recurring tumults, that threatened the existence of the social fabric itself. Now, as far as I can see and learn, poverty and demagogueism seem to be banished from "merrie" England. And why? Simply because the great mass of the population—the producing class—are fully employed and well fed. Agriculture and manufactures have ceased to look upon each other as enemies, and have discovered that their true interests are identical, and consequently now cherish each other as indissoluble friends.

In Manchester I met with a number of commercial and literary men who take a lively interest in all questions that affect the physical and social condition of the people, not only of these realms, but of the empire, and the world. With reference to the religious, political, commercial, and agricultural state of Canada, I found several who professed a deep interest, and evinced no small amount of correct information. Emigration, education, and the state and prospects of our agriculture and public works, formed the chief topics of conversation; and I was grateful to find that fuller information was desired upon these matters. Our system of public instruction, I found, was generally approved of, as the one best suited to the wants of a mixed community, and I met with more than one individual well posted up, as the phrase is, in the history and present state of our Provincial University. Nearly all that I have heard speak on this question seem to agree that every practicable system of state education in mixed communities must be non-denominational. I met, however, with a gentleman of high literary standing and an influential contributor to several of the best English periodicals, who repudiated any connection between education and the state. The social evils arising out of sectarian jealousy under a state provision for education, it is argued, more than counter-balance the intellectual advantages that are obtained. I am told that quite a number of the deepest thinkers entertain similar views, and that an anti-state education party may already be said to exist in England. According to this theory each parent would select such kind of education for his children as he best approves, and pay for it, in precisely the same way as he does their bread. This indeed would be an extension of the free trade principle, and would place food for the mind and that for the body under exactly the same conditions. The effects of such a system, in young and struggling communities, at least, must be obvious; it would take many generations before anything approaching higher education could exist. I heard since have been here similiar notions propounded by able minds in relation to agriculture, science, and the industrial and decorative arts generally. In an old and wealthy country like England such objects and pursuits, after they are once established, may, perhaps, be safely left to the voluntary support of congregated individuals; but in a young and feeble country the case becomes entirely different. Where and what, it may fairly be asked, would have been our numerous agricultural societies and the Provincial Association, if Government aid had been withheld?

In travelling from Manchester to London by the Great Northern Railway, the route lies through a portion of the richest agricultural districts in the centre of England. After leaving Derbyshire and a part of Yorkshire, where the scenery is hilly and wild, with narrow valleys highly productive as meadows or pastures, the country expands into a vast undulating plain, admirably adapted to the purposes of tillage, and abounding in varied and beautiful rural scenery, with, in most places, large fields, hawthorn hedges neatly trimmed, and here and there clumps of decidious trees, particularly around the farm homesteads, all tending to produce a landscape, which may be said to be peculiarly English. Here may be seen the drilling of grain, whether of wheat, barley, oats, peas, beans, &c., executed in the neatest and exactest manner, in mathematically straight and parallel lines. In several places might be seen the process of sowing turnips by means of a large drill, which de-

posits in the most regular manner the seed and the manure with one operation. Large quantities of fine bone and rape dust, guano, &c., are used for manurial purposes.

In consequence of the cold and wetness of the spring, a state of things which I am sorry to say continues to the present date, the grain crops generally wore an unpromising aspect. This, I am informed, is generally the case throughout the British Islands. The wheat is thin upon the ground, very weakly, and will need warm and suitable weather immediately to realize an average crop. The prospect at present, I should say, is decidedly against an average being realized. Spring grain of all descriptions is looking indifferently, and the hay crop, unless more genial weather sets in, will be but indifferent. It has rained, more or less, almost every day, since I left Quebec on the 9th ult., to the present time, with a temperature many degress below the average. The grain markets have therefore an upward tendency, and will soon assume, I fear, a serious aspect if the present weather should continue much longer. Hops, which are extensively cultivated in this part of the kingdom, are looking, I think, comparatively better than grain, but the prevailing wet and cold keeps them back. On naturally warm soils, and where the ground has been thoroughly drained, all kinds of crops are looking better; but even there the prospect is not encouraging. The same may be said of the nurseries and market gardens around London, which have suffered much from the ungenial weather and high winds. There was a good prospect for fruit, but the late cold and storms are thought to have been injurious.

Last Wednesday I went to the Crystal Palace, where the charity children connected with the church in London assembled, instead of at St. Paul's Cathedral, as has been the custom for a great many years. The great Handel Orchestra was filled with some four thousand children, dressed in the Sunday costumes of their respective schools. The arranging of the children, and their various quaint costumes had a very imposing effect, which was heightened to a degree which no words can describe when they rose up to sing, accompanied by the magnificent organ, with an audience in front of near thirty thousand elegantly dressed persons, of both sexes. A scene like this once witnessed will be remembered with pleasure as long as the mind endures. After singing some half dozen pieces of sacred music, the performance concluded with the national anthem, which was sung with great effect, and the scholars betook themselves to various games in the extensive and beautiful grounds which surround this magnificent, and I was going to say, unearthly structure.

In coming up from Manchester to London a gentleman happened to be in the railway carriage with me who was going to the colony of Natal in Africa. There were two other passengers, one a magistrate of the County of Lincoln, and the other I understood was a barrister. The question soon arose relative to the comparative advantages of our different colonies as emigration fields; and a sort of discussion, in a conversational style, was kept up for upwards of an hour and a half. I had of course to set forth and defend the claims of Canada, about which in two or three points my opponents evinced a lamentable want of correct information. Having set them right, I gave them some of the pamphlets with which I had been furhished by Mr. Hutton, of the Bureau of Agriculture, which I find very convenient and useful, particularly in my intercourse with the people of the agricultural districts.

I purpose being in Paris the end of the week, to attend the National Agricultural Exhibition of France, on which I hope to send you some hasty notes in my next. G. B.

Grape Culture in Canada.

We copy from Mr. Hutton's Report of the Bureau of Agriculture, the chief part of a highly interesting correspondence on the subject of the practicability of successfully cultivating the grape in this country, for the purpose of wine-making. We cannot help thinking that Mr. De Courtenay is somewhat too sanguine in his estimate of the adaptation of the climate of Canada for this purpose. Experience has shown that there is something peculiar in the American climate in regard to grape cultivation. In cases where from careful observation and comparisons, there was thought to be good reason for anticipating full success in the culture of the European vine, actual trials have been only followed by disappointments. There has been some influence or other preventing the vine from adapting itself to situations on this continent which seemed on a cursory view entirely suited to it, that the most experienced cultivators could not fully understand. But the subject is one well deserving attention. Although the European vine may not succeed, there is no difficulty in favorable situations with varieties of the native grape. Whether a good article of wine can be produced, however, in such quantities, and over such considerable areas of country as to make the product one of commercial importance, has yet got to be shown. There can be no doubt of the truth of Mr. De Courtenay's remark, in which Professor Hincks quite agrees with him, that if Canada could become known as a wine producing country, the effect in creating a favor-

able opinion abroad of our climate and resources would be greater than that of almost any other fact that we could establish. Mr. De Courtenay has also a correspondence with Mr. Hutton and Professor Hincks, on the producing of silk. He is of opinion that the leaves of the common bass wood would answer admirably to feed the silk worm, and he does not consider the climate unsuitable to the business. We have not space for the correspondence on this subject, but we make the following extract from a letter dated October 27, 1859, which is to some extent a summary of Mr. De Courtenay's views in regard to the climatic points of the question, both in reference to silk and wine:

"Theorists and Botanical Professors declare that the long and harsh winters of this country would render the production of Silk or Wine impossible.

Allow me positively to declare, as a practical man, that the length and severity of the Winter has nothing whatever to do with the production of either Silk or Wine.

Two thousand six hundred degrees (centigrade) of Summer heat is required for the successful and economical production of Wine, Silk, Indian Corn, and Hemp.

This part of the country produces Indian Corn in abundance.

Belgium produces Silk and Wine, and cannot produce Indian Corn.

It is further my opinion that the Winter here is neither as long or as severe (for all practical purposes) as that of Northern Italy, where Silk and Wine are grown in abundance. I have lived there for many years, and have always had from fifty to one hundred head of horned cattle, which I have been ever obliged to keep constantly housed from the fifteenth of October to the fifteenth of May.

Here, my cattle are now in their pastures, and will certainly return there before the first of May.

VAL DE COURTENAY,
Bury, 3rd August, 1859.

TO THE HON. THE MINISTER OF FINANCE:

SIR:—Circumstances have lately come to my knowledge that convince me of the certainty of being able to establish vineyards on the hilly parts of this district, having a rocky, gravelly and sandy soil, and of a Southern or Western aspect.

The Blue-Berry buds forth about a month before the Grape, and notwithstanding the growth being in frosty situations, it is as often as free from Spring frosts in this country as in North ern Italy and Switzerland.

I have, within the last week, observed blueberries situated at the base of a hill of mine, having a Southern aspect, and they are in a prosperous condition, notwithstanding the late frosts of this year.

It is an admitted fact that vines do not suffer from the most severe winter frosts when they are pruned low. The Crimea is a proof of this axiom—as is also Neufchatel in Switzerland, so remarkable for its wines, and where the climate is much less favorable than here.

Judging from the period of the budding of the blue-berry, the grapes would, in fair situations, have here nothing to fear from the late Spring frosts, and autumn frosts are beneficial to the wine grape, and I consider them absolutely necessary to the production of good wines.

I forward the following opinion obtained from Messrs. Foigneux et Moreau, the best authority of Northern wine-growers:

"1. Where the culture of Maize cannot be carried on, that of the vine must cease also; where the one does not ripen the ear, the other will not ripen its fruit.

2. Where kidney beans (haricots) will not ripen their grains, you will have much difficulty in obtaining the grape.

3. Finally, the vine planted in clay soil, or in moist land, is exposed to the late frosts, and will give you much acid, and little sugar, and if sugar, then alcohol, since it is the one which makes the other, and if alcohol, then the richness and keeping quality of the wines. According to this, the following are the principal considerations which must govern you:

1. That it be suited with the proper sort of soil where it should be cultivated.

2. That the vegetation *may be late* in spring, so that it may more easily escape the disastrous action of the spring frosts, which cause the most extensive destruction in the vineyards.

However, it is less the effect of the frost, than that of the burning sun which succeeds it, which produces this result—therefore, if we can, we should so manage that the vines may escape the *immediate* action of the morning sun; in the contrary case, there happens to the frozen buds what happens to all delicate vegetation which passes suddenly from a state of excessive refrigeration to an elevated temperature.

Consequently, we should choose an exposure towards the South or West in localities exposed to spring frosts, so that the sun may not strike the buds till *after* the frost has disappeared."

From the above, and from many other reasons, I am convinced that I could produce excellent wine in this country, and I have a grand hill ot a Southern aspect of nearly 300 acres in extent, and of sufficient declivity to increase considerably the natural heat of the country. I also consider the Eastern Townships the only part of the Canadas peculiarly adapted for a wine country. The West does not sufficiently preserve the covering of snow through the winter, and the early springs expose the grapes to white frosts. The advantages of securing the successful culture of the grape are manifold.

If this country had its plains covered with sheep, and its hills with vines, it would be the Switzerland of America, and by taking from it those ideas of bleakness and excessive cold ever associated with Canada in the minds of Europeans, it would quickly induce an increasing immigration, and draw towards it that capital and intelligence which are necessary to render the country prosperous.

Further, in the point of view of the political economist, it would be equally advantageous.

It would furnish all Canada with wines suited to the wants of every class, and the effect of wine cannot be better demonstrated than by the fact that in wine countries there has never been found a necessity for Temperance Societies, and the most barren hills become the most productive and most nourishing part of a country; for wine is nourishing, and every bottle of it used in a family will save a pound of bread or a pound of meat, and this I have proved myself, as I, at one time in Italy, had two hundred (200) laborers in my service, and I supplied them with wine at their meals from economy.

In the year 1800 the Emperor Napoleon appointed a Commission to inquire into the causes of the poverty of the Province of Brittany. It reported that the use of whiskey was the cause, the inland duties then existing preventing the use of wine in that Province, and the extreme moisture preventing the growth of wine. The excise duties were immediately done away with, and that Province became one of the most flourishing in France, and drunkenness became unknown there.

At a later period the Belgian Government introduced the cultivation of wine in order to prevent this vice, and fully succeeded, and Belgium now competes successfully with Champagne for its sparkling wines, which are found to become superior as they draw closer to the Northern limits of the wine-region.

The preparation of the soil, the importation of the cuttings required for the first 10 acres (about 50,000) from Neufchatel, and the other expenses attendant on a new enterprise, would be difficult for me to support.

To carry it on on a smaller scale than 10 acres (the quantity one man can take care of) would be almost the same expense and would demonstrate no positive result.

[Here Mr. Courtenay stipulates for certain encouragement from Government, in case of entire success,—and thus proceeds:]—

I would engage:—1st. To prepare and plant next spring a good Vineyard of Ten Acres, which in 3 years would produce 2,000 Bottles of good Wine, and 1,000 Bottles of inferior Wine to the Acre, and, within five years, would produce nearly double the quantity, besides some Brandy.

2nd. I would engage in Ten years to prepare a Vineyard of 100 Acres, producing at least 300,000 Bottles of excellent Wines, Red, White and Sparkling, and at least 100,000 Bottles of inferior Wine.

I would require no grant or remuneration of any kind, before I fulfilled to the letter, the first part of my engagement, when if the Wine was found to be of inferior quality or quantity to the engagement, I would have no claim either to the Grant or to any other remuneration.

If, on the contrary, it was found at the end of three years, that I produced 20,000 bottles of superior Wine, I shall then obtain the encouragement in question, on the condition of fulfilling within the given time the second part of my obligation.

I have twenty years' experience in Grape cultivation. I have a man who has this 20 years been always employed in cultivating the Vine on the Northern limits of Italy, and as high as it would grow on the Alps. His experience and my own, I think, cannot fail to be correct.

I have, &c.,

W. De Courtenay.

On the receipt of the above letter, it was submitted to Professor Hincks, for his opinion, and also to Mr. Henry Parker, of Cooksville. The following are their replies:—

To William Hutton, Esq.,
Secretary.
Bureau of Agriculture & Statistics,
Quebec.

Toronto, Sept. 24, 1859.

My Dear Sir,—I have carefully considered Mr. De Courtenay's paper respecting Vine culture in Canada. He evidently understands the subject practically, and has referred also to good authorities. I must say, however, that I doubt the growth of Maize being any test of a climate suiting the Vine, and although further experiments may be desirable, I incline to the opinion that the true Vine (*vitis vinifera*) does not come to perfection without the glass in this climate, and that our chance of successful Grape culture lies in choosing good varieties from our native species.

The Ohio Vine cultivators, in what would seem a more favorable climate than ours, thought themselves obliged to adopt this plan. (I am not aware of the extent of their experimental trials, but they were experienced German cultivators, and would no doubt have employed the European Grape, if possible,) and I should recommend at least careful trial before any quantity of European plants is procured. It is quite possible that the hardier kinds derived from American stocks might answer and yield good Vine when the European species would fail.

Mr. De Courtenay ask Government encouragment for his enterprise, but he seeks this only in case of success, and undertakes the risk himself. The doubts I venture to suggest do not, therefore, materially affect the case. They may deserve his attention if his experience has hitherto been European, but if he can succeed in

introducing Wine-making as an additional branch of Canadian industry, I should think he would be a public benefactor, and I see no improbability of its being done with American Vines, though I fear the length of our Winter not leaving sufficient time for the European Grape to come to perfection.

I believe that the Ohio Vineyards already produce a good article, and are improving from year to year.

Believe me, &c.,

William Hincks.

P.S. Mr. De C. refers to the Blue-Berry, but he should observe that it is not the same species as the European, and is of course one adapted specially to our climate.

To William Hutton, Esq., &c.,
Quebec.

Clair House,
Cooksville, Sep. 30, 1859.

Sir,—Absence from home prevented my replying to your letter, dated Sept. 20.

It gives me the greatest pleasure to coincide with Mr. De Courtenay in many respects, as regards the cultivation of Vineyards. I cannot of course, speak with certainty of the Lower Province, but I consider it a matter of vital importance to Upper Canada.

I have proved, beyond a doubt, that immense crops of grapes can be raised without the necessity of either burying them, as in the Crimea, or pruning low, as recommended by Mr. De Courtenay.

Last year I cut several tons off a few acres, selling some ripe, turning some of the Green Grapes into Champagne, and also making some Red Champagne, as well as some Dry Sherry. I sold 100 gallons of Champagne to one person, who speaks highly of it, and I bottled a cask for home consumption, which is universally liked.

I am strongly of opinion that age will greatly improve the fabric, from the fact that a few bottles remaining from my first Vintage are now far superior, and evidently still improving.

My plan of action is this: I strike any quantity of cuttings, a foot apart, and six inches in the rows; these remain two years, requiring little trouble to keep them free from weeds. In the meantime I trench and underdrain the ground. This done, I take the two year old plants and plant them out Spring or Autumn, encouraging their growth by frequent tillage, and the following year I receive a small return.

If large crops be required, it is necessary to be particular about the under-draining, and for the vineyard to be permanent to trench the ground, making use of whole bones, except the land be pure sand, when trenching may be dispensed with.

I have many vines growing over wire trellises, formed like the roof of a house, others simply tied to stakes. I have much larger crops from the wire trellises, but the expense of erection, and growth of grass and weeds under them would prevent my making use of them on a larger scale. The spring frost has never injured my vines till this year, when that of the 4th June cut off my entire crop, leaving, however, the vines uninjured. The white frost in the Autumn certainly improves the grapes, but I have proved that one severe enough to cut off the leaves injures the fruit.

I am of opinion that cuttings procured from abroad would certainly fail, from their requiring to be buried in the Winter, thus causing a large amount of labour, and injuring the vineyard. On the other hand, the native grape, the Clinton, has stood the test of the hardest Winters unharmed, while the Black Hamburg, Black Chester, Sweet Water, Isabella, Catawba and Royal Muscadine have been all killed to the ground. The Clinton, with sugar, makes a splendid wine. The resources of Canada can never be developed unless such men as Mr. De Courtenay meet with every encouragement. His engagement is very fair but difficult. Canada covered with vines would be very different from Canada as it now is; and how many men have had grants of land, on which nothing has been done but felling the timber and planting potatoes.

I have tried everything in my power to spread the vine culture, but without sufficient means; what can I do single-handed? I have given away plants, and tried to impress upon numbers the great advantage accruing to themselves and the country from Grape culture, but they will not incur the first necessary expense, and they also have a fear of the want of a market. Let the engine, however, be once set in motion, and there can be no doubt of the country being soon covered with a splendid article of commerce.

The interest I feel in the matter must be my apology for the length of this letter.

I am, Sir,

Your Obedient Servant,

Henry Parker.

On sending a copy of Mr. Parker's letter to Professor Hincks and Mr. De Courtenay, the following replies were received:—

University College,
Toronto, October 7, 1859.

To W. Hutton, Esq.,
Quebec.

My Dear Sir,—I am much obliged to you for the copy of Mr. Parker's letter, and am glad to find that an intelligent man, of considerable practical experience, confirms my view as to the culture of the Vine. The Clinton Vine, which he thinks hardiest of all that are useful, is one of the varieties from the native species. It is probable, however, that with the system of close pruning the Catawba and Isabella Grapes, also of native origin, and which are so much cultivated in Ohio, would flourish and yield valuable produce; but Mr. Parker confirms my view, that trying the European Grapes in this climate would be useless.

Undoubtedly Grape culture is a desirable branch of industry to introduce, and successful enterprize in it deserves encouragement. I only desire that Mr. De Courtenay should not, through over confidence, run into expenditure in procuring European Vines at the great risk of disappointment. I would try some of the European with the short pruning. I would also try the principal American varieties, and increase most the stock of the kind which answers best, and in this way little time need be lost. It would be well worth while to make immediately a plantation of the Clinton Vine, as it may be accounted that it will succeed certain and yield a good wine. If Catawba and Isabella, and other finer American varieties succeed, they may deserve preference on further planting, and if European varieties succeed, they may be better still, but of them I cannot help entertaining great doubts.

I will endeavour, at a suitable season, if I live, to visit Mr. Parker's Vineyard.

Believe me, &c.,
WILLIAM HINCKS.

Val de Courtenay,
Bury, October 8, 1859.

To Wm. Hutton, Esq., &c.

My Dear Sir,—I have just received your favor of the 4th instant, and am indeed grateful to you for the copy of Mr. Parker's most interesting communication. The information he gives as to the Clinton Grape is most important. I was aware that the most part of the other Grapes he mentions could not succeed; but there are two kinds of Burgundy Grapes grown in Belgium that I am certain would answer, by being grafted on the Clinton in the way I mention—"Griffe en fente Couture."

I have no objection to your making what use you please of my letters, and, again thanking you for the interest and kindness you have shown me,

I remain,
W. DECOURTENAY.

P.S. I forgot to say that I think Mr. Parker's plan of transplanting Vines is a bad one, nor do I admit that good wine can ever be grown on any other soil than a sandy or gravelly one. The art of producing good wine is in the grafting and pruning, and if you think Mr. Parker would not think it a liberty, I would address him in detail on the subject of his able letter.

Cheviot Sheep.

An esteemed correspondent has sent us the following notice of this valuable breed of sheep, from a paper lately read at a meeting of the Newcastle Farmer's Club, England, by Mr. Thos. Lawson, of Longhurst Grange. Our correspondent is of opinion, in which we quite agree with him, that "although the rage at present is for *large* sheep, yet the Cheviots, from their hardiness, and their excellent wool, might be very suitable for the higher and colder parts of our Province."

The first direct mention of Cheviot sheep occurs in 1372, when large tracts of the Cheviot hills are described as covered with a small, but very hardy race of sheep; and in 1792 they are noted as being without horns, of open countenance, lively eyes, long bodies, thin in chine and breast, clean and fine-boned legs, and yielding fleeces varying in weight from 2½ lb. to 3½ lb. Snow-storms often perilled all the sheep on the Cheviot range of pastures; one storm is reported as having caused a loss of 90 per cent. on many farms; another noted as the 13 days' drift, swept away 75 per cent., and no hill farmer of 1794 will ever forget the drifty Saturday. The Cheviot race of sheep, in a national point of view, exceed all other breeds in economical importance, for there is no ground to believe that any other race of sheep known would yield as valuable an amount of produce on the Cheviot range of pasture. In no other country are such stormy hill pastures stocked with sheep in winter; and our naturalists assert that no wild sheep known could exist if exposed to similar inclemencies as the Cheviot sheep will bear with complacency; they possess the necessary requisites of hardness and activity, and grow heavy fleeces of a fine close fibre, equally efficacious in resisting cold and rain. They combine all the independence of a mountain race, with much of the docility and grazing qualities of the low-ground races; they form the connecting link between our greatest altitudes and our low pastures, easily adapting themselves to either, and have always formed an attractive stock for annually supplying our richest grazing pastures. They evince great attachment to the locality in which they are reared, and, when the ground is covered with snow, they are indefatigable in scraping to the grass or heath; they are often buried under the snow without sustaining any serious injury, and one case is on record of one being under snow 33 days, and, although unable to move when discovered, it survived and recovered its strength. They possess great powers of adaptation, and two or three generations suffice to acclimate them to almost any extreme of temperature, altitude, or humidity. The principal point in breeding is to produce such a type of stock as is most suitable to the climate and herbage, and it is imperatively necessary to have sheep fully equal to the severities of the climate, and of at least equal hardiness to their pasturage; and, where a breeder keeps these points steadily in view, and avoids any impurity of blood, I mean that serious deterioration will not assail such flocks. An ordinary Cheviot ram should have his fore and hind quarters of equal weight; fillets, haunches, and eisils wide; ribs springing horizontally from back and falling deep down at sides; shoulders well slanted, free in motion, fine at top, and rising about half an inch higher

than the back; neck springing up from shoulders and fully incorporated with their rise; head easily set on, level on crown, and covered with hair; ears rather pointed forward, well closed, thin, free from redness, and well crowned with fine hair; they should be about four inches long and not more than five inches apart, any tendency to flatness or to droop being very objectionable. Eyes large and mild, but full of life; eyebrows very slightly elevated, and about five inches across; nostril bone strong, with an elevated ridge; the nostrils being black, full, and square with muzzle; cheeks fine, and covered with fine hair, of an equal length; under jaws about nineteen inches long, clean, well spread, free from loose flesh underneath, with the front projecting something like a chin; lips full and swelling from jaws; the muscles should quickly expand from the head to the shoulders and breast; bosom to project before shoulders, with brisket broad and deep; fore legs fine between knee and ankle, ankles clean, and hoofs black. He should be straight from the shoulders to the tail, which should hang down perpendicularly, and be flat in appearance; long from haunch to eisil; flanks well down; thighs deep, short twist, with finely-turned hocks, slightly projecting; hind legs should have clean muscles and be free from coarse hair, they should be flat in appearance, and stand as near perpendicular as possible. Wool should be quite free from hair, and uniform in quality: except a little coarse on the hips and tail; its lineaments should be soft, long, and tenuous, each filament being thickly set with small fibres; it should come up to the ears, extend one inch on the jaws, hang over the knees, and leave no bare flanks visible. An ordinary ram should be strong in all his points, but equally free from coarseness or fineness, and should stand about seven hands high. Cheviot sheep are reared on hill pastures through a regular rotation of classes and ages, and then sold to those whose pasturage enables them to complete them for the shambles, and much discernment is exercised by the skilful grazier in selecting stock from a hill most suitable for his pasturage. Mountain sheep reared on heath and bent do not suit low pastures with rich, broad grasses as well as similar sheep from a mountain pasture of broad grasses; and sheep from a hill of this latter description would disappoint a grazier, if put on a low pasturage where the grasses are short and fine. The prices of top wedder lambs, during the last 30 years, have ranged from 6s. to 15s., exhibiting an average of 9s. 6d. each. Draft ewes, during the same period have varied from 12s. to 28s., averaging about 19s. 6d. per head; wool always forms a large item in the produce of a Cheviot stock. Their wool appears to have been produced by a sedulous cultivation persevered in over many centuries; the highest attainment being a long, fine filament, thickly set, closely serrated, and a total freedom from either long or short hair. Wool is a slow conductor of heat, and the more numerous the serrations on each filament, the more effectually can it resist cold, wind, and rain; and it is to the possession of these qualities, in a superior degree, that pure-bred Cheviot sheep evince their superior hardiness over every other race of sheep known. A regular Cheviot flock should yield an average of 3 lb. to 4 lb. per fleece of white-washed wool, the price of which has varied from 8d. to 21d. per lb. during the last 30 years, and has averaged about 13¾d. per lb.

The Wisconsin Agricultural and Mechanical Association.—This newly organized institution is to hold its annual fairs at the place known as the Cold Springs, two miles west of Milwaukee. It is based upon the same plan as that which has been so successful at St. Louis. Its objects, as defined in the charters, are to promote improvements in all the various departments of agriculture, including not only the great staples of industry and trade, but also fruits, vegetables, and ornamental gardening; the promotion of the mechanic arts in all their various branches; the improvement of the race of all useful animals; the general advancement of rural economy and household manufactures, and the dissemination of useful knowledge upon those subjects.

For the accomplishment of these objects, various means will be adopted, besides the annual fairs. The grounds are to be highly ornamented, so as to become a favorite place of resort; a museum in which to display all articles of use; and a library to contain books appropriate to the subjects indicated; and courses of lectures will be instituted. From the spirit with which our business men take hold of the matter (seven thousand dollars being already subscribed by 17 persons,) we have no doubt the project will be successful.

The officers are Dr. E. B. Wolcott, President; I. A. Lapham, Secretary; Harrison Ludington, Treasurer. To Hon. W. D. McIndoe is due the chief credit of initiating this important movement.—*Milwaukee Sentinel.*

The Great Tornado.—From a variety of accounts published in Western papers, relative to the late tornado, it appears that it swept over a space of 450 miles, with undiminished force. Its destructive effects can scarcely be conceived from the accounts given. A Chicago paper says whole forests were crushed in an instant, and respectable streams of water literally scooped out by the mighty tempest. The course of the tornado is traced from Fort Dodge, Iowa, where it commenced on Sunday morning, June 3rd, to Ottawa county, Michigan, which it reached on the evening of the same day. The Lyons (Iowa) Union gives a long list of killed and wounded. Probably not less than 150 200 lives were lost, and thousands are left houseless and penniless. Liberal relief measures are on foot at Chicago and other places.

Winter Barley.

The following is the communication of Mr. Chapman, of Ottawa, to the Bureau of Agriculture, referred to in a recent number, on this subject:

My attention was drawn to a remarkable plant of Barley (a single one) growing in a Cottage Garden in England, in the Autumn of 1851, and I brought it with me to Canada in the Fall of that year. The amount of ear in that plant was 56, and on examination they proved to be 5 rowed, very strong in the straw, and averaged nearly 70 grains each. In the Spring 1852, I sowed a part of it, and although it produced an unprecedented amount of fodder, it never brought an ear. In the Fall of the same year I sowed some more, and was much gratified to find in the Spring a fine healthy crop, and on July 11th it was ripe, and cut, and as good in quality as the parent plant. Since then I have been trying it in all the forms that suggested themselves to me—as to its hardiness—the best time for sowing it—the proper quantity of seed—soil best adapted to it—and whether it varied in its habit of soil or productiveness—each year sowing being of the previous year's yield. And during all that time it never failed once when sown on land fitting for it, and at the proper time; but when sown late on sand or where water laid on it in the Spring, it has been killed, but when sown on pretty stiff land, well tilled, in fact as it should be for Fall Wheat, any time from the middle of August until about the 10th September, the Winter has never injured it, and it retained all the characteristics of the first plant. It ripens ten days in advance of Fall Wheat, and its vigour of growth is wonderful, for from its manner of stooling, the average of ears from each plant is not less than 50, containing at least 60 grains; a far greater number being produced where the plants had more room. I have until this fall sown it in drills 15 inches apart, and the seeds 3 inches in the drills; but this year I have sown some at 10, 12 and 15 inches, with the seeds 3 inches as before, which will enable me to ascertain if an increase of seed produces an increase of yield. I commenced to sow on the 9th of August and continued at frequent intervals until the 9th September. By adopting the last mentioned distances, the exact amount sown was 6 lbs. to the acre, or rather less than a gallon.

I shall here inform you that I am not a Farmer, but a Gardener, and the quantities grown have been merely experimental, and I can therefore only give you the proportionate yield per acre, which I find on ordinary Wheat Land to be a minimum of 60 with a maximum exceeding 80. Grass has never been tried with it, but as it is sown so thin upon the land, it appears to me likely that it would be sufficiently strong to escape being smothered by the luxuriant growth of the other; for on the 6th October the growth of that sown on the 9th of August was as level as a piece of baize, 15 inches thick, of which I sent specimens, taken from the middle of the land, to Professor Buckland, at that date. The straw is fully proportioned to the weight of the ears, and I have never seen it laid. The fodder is of the best description; the sample I send you is not an average one, as there are a few scattering ears, the crop being thrashed in the Fall, but they may serve to guide your judgment of its properties. It is proved to be of first quality for matting, and it has another excellent property to which I beg to draw your attention. It has a most remarkable thin skin and a rice shaped grain, which will greatly increase its value to those who manipulate it into pot and pearl barley. A gentleman largely engaged in that manufacture, pointed out to me the advantage from the improved appearance of the article, by leaving it when manufactured nearly as long as an ordinary grain in its natural state, which would in all probability induce a very extensive business. Since I have grown it, I have not seen a single plant, ear or grain injured by any insect or blight, and so far as my observation goes, it is the safest and the most profitable grain crop that can be grown in Canada, within, of course, certain limits. I mean that every prudent Farmer should grow it where the Wheat crop is so uncertain. The effect it might have, if grown for one season over a large contiguous area, in arresting the Wheat Fly, every intelligent Farmer will form his opinion upon. Some persons have raised an objection to drilling it, as being costly both in time and money. The method I adopted was this. I took a piece of wood about 6 feet long, 6 inches wide, 2 inches thick, and bored that with an auger at 10, 12 and 15 inches distance, into which I put as many pins as the distances gave me, the narrowest being 7, to this I put a pair of train shafts and a pair of handles, and a couple of pins through the three where they intersected, and the whole affair was done. With a boy to lead the horse and a man to hold the drill, it is surprising how soon and how easily an acre may be marked out. One of the barrow shaped sowing machines may then be used, and a man can go over an acre with ease to himself in 4 hours and deposit the grain with almost mathematical precision. The cost of such a machine is $4, and can be used for all root crops by merely setting the distributor according to

circumstances. The increased expense of sowing in drills over broadcast is not so great as it would appear. But there is no reason why it should not be sown broadcast as well as any variety where two bushels are sown. It is only necessary to mix your 6 lbs of grain with ashes or any other substance like it, and it can be scattered as well as if it was all grain, with the full knowledge that you have saved nearly two bushels of Grain for every acre sown, and that you may get it into your barn, a very heavy crop, before your Wheat calls for your attention; and if you wish, you may get a good crop of White Turnips to follow the same season, to the manifest advantage of your live stock, if it is not sown with grass. It was not my intention to have sold any this season, but all parties who had seen it growing became impatient that it should be let out, or they declared that they would steal it. I therefore exhibited it at Kingston last Fall, and intend to sell it to the general public. For the reason I have given you, that it has only been grown up to this time experimentally, I have no very large supply, and as one gallon is sufficient to sow an acre, I propose to charge $2 for that quantity, which will be a trifle in advance of the commonest articles at two bushels per acre, and would produce sufficient to sow a very large area the next year.

I will deliver it free to the Ottawa and Prescott Railway, and I intend to give ample notice through the press next summer, when it will be ready, so that all who are interested in it may come and see it, and judge for themselves.

CHAS. CHAPMAN.

[Since the above was in type we have received from Mr. Chapman two specimens of the winter barley, sown at Ottawa, 1st September, and taken up from there on the 12th June. They were remarkably strong and vigorous plants, one stool containing about 40 stems, with from 60 to 70 grains in each ear, each stool being the growth from a single seed. This would represent a rate of increase of about 2500 from one. This extreme tillering must of course be attributed largely to the mode of sowing and cultivation, but the plant is evidently very vigorous and hardy. Mr. Chapman appears to be of the opinion that this is a peculiar variety of winter barley. If this is really the case, it ought to be propagated, but if it is only the ordinary sort, it is already sown in large quantities in the Niagara District and other parts of Canada, and in the Western States. We believe it has been found very prolific, wherever properly sown and cultivated.—ED.]

The Pleuro Pneumonia in Africa.

This disease has been very malignant in South Africa. The Rev. Mr. Lindley, a missionary recently returned from the Zoloo country, South Africa, a week or two ago at New Haven, gave the following account of it, reported in the *Homestead*.

"The disease was introduced five years ago from Holland, and in two years spread *thirteen hundred miles* up the coast and into the interior, literally blotting out the neat stock of the country. A great portion of the wealth of the natives and of the Dutch farmers who are scattered through that entire region consists in cattle. They are fed in droves and accompanied by herdsmen. There are no fences. Trading in cattle is very extensively carried on, and they are used as draught animals very much.

A full blood Dutch bull was imported for the improvement of the native stock, by a gentleman of Cape Town. This bull had the disease, and after infecting several herds, living a few months or weeks, he coughed painfully, his lungs decayed, and he died.

In general the symptoms of the malady are, after some eight weeks have elapsed since the exposure—first, a staring coat, then a light lung cough followed next by a deep consumptive cough, given with the neck outstretched so as to make a straight passage from the lungs outward; shortly after this they stop feeding, fall, and die.

The spread was very rapid. Unprincipled men would sell their diseased stock, in some cases driving it far into uninfected regions; thus it traversed 1,300 miles in two years, destroying hundreds of thousands of cattle.

The question was asked what is the state of the cattle that was left, or passed over? —Mr. Lindley said there are none, they are all swept away. He said he had known of one animal to get well and heard of others in a few cases, but literally they were all cleared out.

As the disease approached the district where he lived, at once it 'jumped' two hundred miles or more, being thus brought within sixty miles of his people. This was done by two native cattle traders, who bought five head of diseased stock and drove them two hundred miles and then mixed them with a herd of eighty or more.

Mr. Lindley became thoroughly alarmed at the approach of the malady, and as the chief was holding at that very time a counsel of his people, he (Mr. Lindley) went before them and fully explained to them the contagious nature of the disease and how they might guard against it, and so alarmed them, that with the aid of the chief's authority, they at once cut off all communication between their own and the neat cattle outside their bounds.

The people inhabit a valley and the sides of the surrounding hills. From his description we should judge it to be quite thickly settled, by a comparatively civilized people.

The disease soon appeared on their bounds, but as all were prevented bringing cattle over the ridges of the hills and other bounds of the district, they enjoyed entire freedom from it among their cattle, while within sight the cattle of the neighboring region could be seen at times lying dead in the fields.

Mr. Lindley remained after this three years in that country, and during this time and afterwards, so far as he knows, the same entire exemption was maintained. Sometimes the natives would be obliged to turn out armed with spears, etc., to drive back those who were determined to bring their cattle into the valley.

Mr. Lindley described a process of inoculation by which the disease was implanted in the tail of sound animals, and in many cases so affected their systems that they would after recovery be no more liable to take it in the lungs. This is done by making an incision in the animal's tail, and inserting a portion of a diseased lung. The tail swells up, and the disease goes up the tail to the body, and the hinder parts swell and become most disgusting. The sores need opening, and the animal careful nursing. They generally lose their tails, and have a terrible time of it. The number that recover is about 16 ont of 20, if the animals are young or vigorous, healthy, and in low flesh. The inoculation is certain death to fat cattle, and cows in full milk or with calf. It is now a matter of speculation to go into regions not yet affected and buy up the most promising animals, inoculate them, and then drive them into the cattleless region for sale. These are the only cattle they now have, but they are perfectly unharmed where the disease is all about them."

We have given a large amount of space in our recent numbers to this subject, but trust that its importance will be considered a sufficient reason for so doing.

Pleuro-Pneumonia.

We learn from the Albany *Country Gentleman* that pleuro-pneumonia was introduced last May into the State of Massachusetts by the importation of cattle from Holland. The statement given is very decided evidence that the disease is contagious. This evidence is so minute that it will satisfy most persons who have not committed themselves to the non-contagious theory. Those who have bestowed the most attention on the disease, are generally of the opinion that the disease is contagious, but that it also occurs spontaneously, the result generally of conditions very unfavorable for maintaining the health of the animals. The opinion that pleuro-pneumonia is not contagious, which opinion has been urged by some veterinarians and others in this country, has been the chief cause of the British Government not adopting the course followed in several Continental States of taking measures to prevent the spread of the disease—this by slaughtering all animals laboring under the disease, and indemnifying their owners in whole or in part. In certain States, as Belgium, this measure, it is said, has almost wholly eradicated pleuro-pneumonia, and when it has reappeared, it has been traced to animals brought from other countries.

Whether a similar course should not be adopted in this country, is a question which is fairly open to discussion; and we consider that agriculturists should consider the question with a view of legislative interference—especially as to the importation of cattle. No doubt such a proposition would be looked upon as interfering with the principles of free trade; but as almost all the cattle imported are slaughtered within a few days of their being landed, the prevention of the importation of cattle would not affect the supplies of animal food. Few graziers will now purchase foreign cattle, as the result of almost all experiments has been that the animals seldom continued long healthy, and there have been instances of a very large percentage dying of pleuro-pneumonia. The remaining animals in the fields have generally been sent to market—the owners expecting that the disease would extend, the result of which would be a higher percentage of deaths. There are Government inspectors at the London Wharfs, and doubtless at the principal ports in England, who pronounce upon the cattle imported, whether they are or are not laboring under disease. Many persons will regard this inspection as comparatively useless, as during the first stages of pleuro-pneumonia it requires the utmost skill to distinguish whether the animals are laboring under that disease or from weakness

induced by the hardships they have undergone during the voyage. The treatment to which cattle are usually subjected on board of the steamships plying between the Continental ports and London, predisposes animals to disease. It may also be inferred that when pleuro-pneumonia appears in a herd of cattle, whether grazing in the meadows of Holland, or being fattened at the distilleries, the disposing of the animals immediately occurs to the owner, and London is the most convenient port to which they may be despatched. We entertain no doubt that a considerable number of the animals which come from Holland and the Baltic ports are from herds in which the disease has appeared. Those cattle which we have seen landed at the wharfs or passing through the streets of London, have suggested this impression.

Were the importation of cattle prohibited, those which at present are sent alive to the London market would be slaughtered on the Continent, and the carcases forwarded to London. This would cause no diminution of the supplies of beef, while it would secure a certain immunity from the spread of pleuro-pneumonia. The importation of live sheep is also a question which may be considered. The disease known as small pox is not now known in this country, but was introduced from the Continent shortly after the free tariff, and caused very considerable loss to some graziers. A legislative enactment was consequently passed against the sale in public markets of animals laboring under infectious diseases. This Act is still in force, but is rarely called into operation. Were it more strictly enforced, the owners of animals affected with pleuro-pneumonia would be compelled to slaughter at home animals laboring under disease, in place of despatching them to market, as is at present generally practised. Were this course adopted, pleuro-pneumonia would be of less frequent occurrence, and it might in time render unnecessary such a stringent measure as the slaughtering of all animals laboring under the disease, it being very probable that the disease would thus become very rare. Pleuro-pneumonia is comparatively of recent introduction, and although its introduction cannot be very well traced to this country, there have been statements published which at least is indirect evidence that it was introduced from Holland, first appearing in Ireland, and believed to be introduced into the west of England by diseased animals coming from Ireland. There are very few practical men who do not believe that the disease is contagious, and who generally satisfy themselves that when the disease does appear in their stock, it is to be traced to some recent purchases in market, or by their animals having come in contact with affected animals, or from substances, such as straw, which have been in contact with diseased animals. The disease has been for some time prevalent, as has also the disease known as mouth-and-foot disease.

In several English counties—especially those around London, and in the counties of Derby and Chester, the disease has been very prevalent during winter and spring. It is also prevalent in dairies in the Lothians, more particularly the dairies in Edinburgh.—The stock affected are principally cows, which have always been more subject to pleuro-pneumonia than other cattle.

In reference to the introduction of the disease into America, it is seldom that such direct and conclusive evidence as to the contagious character of pleuro-pneumonia has been presented, as is furnished in its introduction into the State of Massachusetts. Had the British Government been equally prompt on the first appearance of the disease in this country, it may be safely inferred that its spread would have been greatly checked, or perhaps wholly prevented. One of the great disadvantages which the agriculture of this country labors under, is the absence of its recognition in the Ministry, either by a Minister of Agriculture as in France, or by a Board of Agriculture, which at one time existed in this country, and which has been copied by several of the American States. In Canada there are both a Board and a Minister of Agriculture. With a Board of Agriculture, or with a Minister of Agriculture in this country, such questions as the introduction and spread of infectious diseases would receive prompt attention, and action be immediately taken if deemed necessary.—*North British Agriculturist, (Edinburgh.)*

Wine Farming.

In the Valley of the Ohio, the average yield from vineyards for the last twelve years, has been about 200 gallons to the acre of 2,400 vines. In well cultivated vineyards, favorably situated, 300 gallons.

This is about the average of France and Germany.

Wine Farming will, in a few years, become simplified, and almost as easily understood as corn planting. There is no mystery in it. Experience alone must teach the proper position and soil; the right distance apart for the vines; the most judicious methods of Spring and Summer pruning; and as for cultivation, keep the ground clean with the plow or cultivator, like corn. Certain rules are given in books, for vineyard culture, as pursued in

the Ohio Valley. These are the European systems, adapted to our own country. It will be safe to follow these rules, until, by experimenting, we can find a better. There is more room for progress in this branch of Agriculture, than in almost any other.

Making the wine is as simple as making cider. The grape bunches are cut from the vines, and all unsound or unripe berries picked off the bunch and thrown into a bucket, to make—with the addition of sugar—vinegar, or an inferior wine. The perfect grapes of each day's cutting, are taken to the wine house, and in the evening, after being mashed in a barrel with a beetle, stems and berries, or passed through wooden rollers in a small mill, are put on the press, and the juice extracted. About one-third runs off without any pressure. The outer edges of the pomace are cut off for 8 or 10 inches, after the first pressing, separated with the hands, and thrown on top, when the power of the screw is applied, and another pressing made. This is repeated two or three times. The juice from the last pressing being very dark, and weak and astringent, is put with the inferior wine. The other is put in large casks, filled about five-sixths full, to ferment and make the good wine. No sugar or brandy should be added to the best Catawba juice—or must—as it makes a better wine without, and is strong enough to keep well. One end of a syphon is placed in the bung hole of the cask; the other, being crooked over, rests in a bucket of water.

The fermentation commences in a day or two, and the carbonic acid escapes through the water. In 10 or 14 days, the syphon may be removed, the casks filled up, and the bung driven in lightly—in a month, tightly. In mid-winter the wine is drawn off into another cask, and the lees of the wine, with the pomace of the grapes, is used to make brandy.

The wine will be clear, and pleasant to drink, in a month or two after the first fermentation ceases. The second fermentation occurs in the spring, about the time of the blossoming of the grapes; this is but slight, and it will be merely necessary to loosen the bungs: when it is over, the wine will be clear in two or three months, and safe to bottle, but that operation had better be deferred until November. And *this* is the whole process of making still wine—the wine for general use; and, being a *natural* product of the pure juice of the grape, it is more wholesome than any mixed or *artificial* wine, however showy and high-priced it may be.

Let the grapes be well ripened; the press, casks, and all vessels perfectly clean, and then keep the air from the new wine, by having the casks constantly *bung full* and there is no danger of its spoiling. This is the whole secret.

It is presumed that no one will go into wine-farming largely at first, but take the precaution to test, by the cultivation of a few acres, the capabilities of his soil, position, and climate, and the kind of grape best suited to it.

R. Buchanan.

—*Ohio Valley Farmer.*

Chiccory, or Succory.

The chiccory, or succory plant, is quite common in the eastern part of Massachusetts, and for aught we know, all over New England, and yet but few people know its name or uses when they see it. It is a stout, branching plant, when full-grown, standing two to three feet in height, has beautiful sinuate leaves and bright blue flowers, and a sort of flaunting, care-for-nothing air, which makes it quite attractive. It loves warm, rich spots, and in such places will throw its tap-root so deep and strong into the ground, that more than the strength of a single man is required to pull it out.

It has been extensively grown in Belgium, Holland and Germany, and as a cultivated variety was brought into notice by the late Arthur Young, as a forage plant. The root is white, fleshy, and yields a milky juice. This is dried, roasted, and used as coffee, and is now allowed by the excise in England to be mixed and sold with coffee. The reader has quite likely often used it at his own table, when he supposed his cup was filled with a decoction of the pure Java or Mocha! The English *Quarterly Journal of Agriculture* says:—"No plant cultivated in this country will bring the cow-feeder nearly an equal return with the chiccory."

We know the plant well, however, and advise every farmer who finds it growing on his premises, to eradicate it as fast as possible. If it yields a large quantity, the *quality* is bad, for the plant is a coarse, rank grower, takes possession of the whole land, and the forage is bitter and unpalatable, and will give the milk of cows an unpleasant taste. The succory is gaining ground in this region, and needs careful looking after. A species of it called *Endive*, or *Garden Succory* is extensively cultivated among us as an early salad.

When the root of chiccory is to be used as coffee, it should be cleaned and put into the oven after the bread has been taken out, and allowed to remain until cold. Continue that process until the root is sufficiently brittle to be ground, and then mix a fourth or more with coffee.

The root is also used medicinally for chronic affections of the stomach, connected with torpid liver.—*New England Farmer.*

Mangel Wurzels the most Lucrative.

Anxious inquiries appear in various journals, also from our own private correspondents, which varieties of mangel-wurzel are best and most lucrative to be cultivated, or that will grow to the greatest weight, and possess the most keeping, saccharine, and nutritious food? The results of experience from any persons who have tested those inherent qualities will no doubt be received thankfully by many who have not tested the merits of all or either. Allow us to offer the little we know as pertaining to the question. "There are four varieties most commonly cultivated, namely, 'yellow globe,' 'red globe,' 'long red,' and 'long yellow,' all of which are proportionate as regards their productiveness and weight; but their inherent properties differ in degree, and the long kinds are most inconvenient for horse-culture between them, which is one objection to them, and no mean consideration. The yellow varieties have proved to us the most tender and least nutritious, and the red kinds the most juicy and hardy, also better relished by animals: in fact, the more high-bred colour there is in roots of any kind, the greater we consider is the amount of nutriment contained in them. We will not pretend to say to what amount or extent; this we leave for scientific persons to explain. Suffice for us to say, that it is well known, beer, good and drinkable, may be made from the white Silesian beet; but we would fain observe, and draw attention to the fact, that very nutritious and high-coloured wine, cheaper by far than malt-beer, can be made from the best black and crimson beets. Beasts, also, under our notice, after having been used to feed on the yellow globes, pulped and mixed with chaff (though thriving admirably), when being changed on to the long reds, ate more chaff with them, throve still better, and had absolutely to be starved before they could be induced to taste the yellow globe again; but the minute they were offered reds a second time, they ate all hand-smooth with surprising avidity. So juicy are the long reds in contrast with yellow globes, that of the former it will flow through the bottom of a basket containing the pulp, whilst of the latter it is comparatively dry. Having had no experience yet of the red globes in feeding, we leave it for others to explain who have to offer theirs. There is but little doubt, however, that in degree they possess their share of greater succulent qualities than are in those of lighter-coloured breeds. It may be observed, too, that the long yellows are less in repute, as they grow more leafy, bushy, and fangy-rooted, like some other varieties of "betas" not here enumerated, which consequently draw most nutriment from the soil, whilst they also fail to produce sufficiently clear roots to give them a name worth of general cultivation. A. Hardy & Son, Seed growers,

In Mark Lane Express.

Potatoes on Grass Land.

My land is in Brewer, Me., is clayey loam, free from stones, and now free from stumps, though it has been but 12 years since it was covered with a heavy growth of pine and hemlock timber. The day before I want to plant my potatoes, I spread a fair coat of manure on a piece of grass land that was mowed the year before, and after I have spread over as large a piece as will make one day's planting, (so as to keep the manure from drying up,) I commence at one edge of the piece with a light sward plow and a strong pair of oxen, and run a rather shallow furrow as straight as possible, lapping the furrow of course on to the green sward so that the two grass surfaces will lay together. The seed is dropt about eight inches apart, on the grass land, right at the edge of the furrow that was turned up; then plow another back furrow, lapping it on the grass as before, so the two edges will meet together and cover the seed, and also the width of two furrows that has not been disturbed with the plow, that is, the two furrows are "cut and cover," as farmers call it, as is always the case when you commence in the middle of a "land" and turn with a gee, and so on for the whole piece; but this furrow is a little more difficult, for the plow must run back *in*, or *at* the edge of this last track, but the plow can run a little deeper this third time, so as to give it hold enough of the earth to turn up this third furrow and lap it on the grass, ready to drop another row of potatoes.

The two narrow grass surfaces are thus laid together, with the manure between them, and the potatoes are planted in the midst, where they have a warm, moist nest, and will soon sprout up through the joint of the two furrows, and the roots will run out among the grass and manure, under each sod, and get all the benefit of the decomposing grass-sward and dressing.

The seed is not so liable to be drowned by heavy spring rains, for the water will settle in the ditches made by the plow, and the plants will stand the drough better, because these two grass surfaces will retain

a sweat and moisture that the mellow earth will not. It is very little work to hoe them, for they do not need much larger hill or bed than they already have.

I have planted so for three years, and last season planted six acres of Jackson Whites in this manner, and think I can raise about double the crop per acre that my neighbors do, planted in the common way. When I dig them, the sward is very well rotted, but retains strength enough to be turned off with the hoe in flakes and lumps, and there the potatoes lay like apples on a shelf, and as clean as smelts, for they have seen no dirt, looking at you and inviting you to pick them up; and the land is in tip-top order, for these old grass sods have had a ground sweat all summer, and have become quite rotten. I lack a suitable plow, for I need a *sward* plow with a mould board on each side. Will some of the plow folks see what they can get up for this purpose?

A. S. Hall,
In New England Farmer.

Correspondence.

Alsike Clover.

To the Editors of the Agriculturist.

Cobourg, 20th June, 1860.

W. A. C. of Ancaster, in your last issue, asks the proper time to cut Alsike Clover for "Hay and Seed."

Believing I have more experience with "Alsike" than any other grower in Canada, I offer the following remarks on the subject.

In former communications to your excellent Journal I stated, as one of the best recommendations of the Alsike, that it will ripen its seed perfectly without much deterioration of the hay, if it does not happen to grow too luxuriant. To prevent this, I recommend turning sheep on the clover until about the 1st of June in ordinary seasons if the principal object is seed, but if both seed and hay are desiderated, better *leave the sheep outside the field.* One accustomed to clover seed growing will know by examination when the seed is fully ripened; the time will depend on the locality, here it is generally about 25th July; it will make the best hay when cut just when the blossoms are turning, which will be about 10th July.

If W. A. C. wants seed, I would advise mowing with the scythe in preference to machine, turn the swath very carefully once a day for a week, and gather with a fork, raking won't do, as the seed is very easily shaken. Should the weather be dry it may be, with safety to the seed, stacked in the usual manner, and on a clear frosty day in winter, two willing men with pitchforks will *shake all the seed* on the barn floor and leave the hay almost as *good as new.* By this means the unripe seed will remain and a much better sample of fully ripened seed will be got than if thrashed.

I trust these remarks may be useful to W. A. C. and others who are trying this, *the best* of all the trefoils.

Patrick Wight.

P.S. I cannot allow this opportunity to pass, without telling you that the present appearance of crops in this neighborhood is far beyond what that "phœnix" *the oldest man,* has any recollection of. Genial showers and warmth are bringing our mangolds and other green crops forward a *month* in advance, in fact there is not a murmur of complaint, all seem to feel deeply the *prospect* we have of being this year blessed with abundance, after the anxieties and disappointments of the last two seasons.

P.R.W.

The best Rings for Swine.

To the Editors of the Agriculturist.—With your correspondent "Swineherd" I perfectly agree up to the fourth comma; but to be profitable, (and I think few will for pleasure breed, rear, or fatten pigs,) very careful consideration is required, and lest any should persevere in allowing their pigs to roam at large as I have done, thinking they are doing right and are making a good business of it, I tell them they are wrong, and the sooner they act differently the better.

I am a convert to the somewhat antiquated doctrine, that the devil enters into the swine as soon as his tail begins to curl, and root he will in spite of annealed, brass or copper wire, horse shoe nails, staple rings made by the blacksmith, or cutting the cartilage of the nose. Even in the very agony of death he will root—I know him.

But if any one has a farm as stony as mine was, the best ring I know of is to build a wall so that the ends come pretty near together, roof and plaster it well, put a window at each end for ventilation, lay a good plank floor, put a good trough in it well fastened down, plenty of meat and drink and a little straw, put in your pig, make a door, hang and fasten it firmly, and then, and not till then, have you got your pig properly ringed.

But as it is necessary that breeding sows, young pigs, and I believe every description of pig, should not be ringed too tight, I would recommend two yards, or "garths," as the Yorkshiremen call them, well fenced, mind you, or they will be out, if they are anything like what I have had.

Supposing the yards are nice and mellow in the spring of the year, I would recommend to sow tares or something of that sort in them, and as soon as you think necessary let out the pig into one yard, the tares in the other yard will be ready to mow for him shortly, and he

may root and you may smile, he is ringed and does not know it, the fact is he is "blarnied."

E. A. Harland.

Guelph, June, 1860.

Agricultural Intelligence.

Stock Importations.—Mr. John Spencer, of Whitby, well known for his superior Southdowns, has lately imported some valuable stock from England, consisting of two superior Southdown ewes and a ram, and three pure bred Devon Calves, bred by and purchased from Lord Portman of Dorsetshire. It is some evidence of the improving prospects of our farmers, that they are beginning to enter again spiritedly into the importation of first class animals from Europe for the improvement of our Canadian flocks and herds, such enterprises having been almost abandoned during the last year or two. We learn that Mr. F. W. Stone, of Guelph, has again gone home to England with the intention of bringing out an assortment of stock of his own selection from some of the very best herds in the mother country.

The Fourth National Exhibition of imported blood and American breeds of horses, will be held on Hampden Park, Agricultural Fair Grounds, in Springfield, Mass., the 4th, 5th, 6th and 7th of September. The existence of the Pleuro in cattle having led to the abandonment of the State Agricultural Fair, the Directors of the Hampden County Society promptly resolved to substitute a Fourth National Horse Show, and have appointed a Board of Managers, most of whom have served in the same capacity at the former successful Exhibitions. The list of premiums has been enlarged and classified, and it is designed, aside from the exhibition in itself considered, to give greater facilities for the deliberate examination and trial of *horses intended for sale*. Springfield is easily and quickly accessible from all directions, and Hampden Park is unequalled in its track for showing or training a horse.

The Board of Managers of the State Agricultural Society of California, have fixed upon Wednesday evening, September 19th, for the State Fair, when the opening address will be delivered. The Fair will close Sept. 26th.

Horticultural.

Memoranda for July.

Vegetables.—Our hints for last month will to a great extent bear reperusal for this. Early cauliflowers, which will now be progressing towards maturity, must be watered in dry weather; and as the heads begin to exhibit themselves, break down some of the large leaves over them to protect them from the rays of the sun, and from rain. Winter cabbages, when the weather is favorable, may still be transplanted. If early beets and carrots have failed, seed may still be sown, and will produce a good return for autumn use. Plant cucumber seed for pickles. Peas for succession crops may be sown now; soak in soft water five or six hours before planting. Sow radishes; all the common kinds of garden turnip seed may be sown any time this month. Hoe and thin out all standing crops; clean vacant ground; prevent weeds running to seed. If the ground is dry, frequent hoeing will be beneficial. Use means to destroy insects, sprinkle tobacco dust, soot, ashes, &c., upon plants affected by them. Saltpetre is pernicious to many species of insects; it is also an excellent manure, and may be used to great advantage when dissolved in the proportion of one pound to four gallons of water. This liquid, applied to plants through the rose of a watering pot, will preserve health and vigor. Soapsuds are equally beneficial, if used occasionally in the same manner, say once a week. These remedies, applied alternately, have been known to preserve melon and cucumber vines from the ravages of the yellow fly, bugs, blight, &c., and to keep the plants in a thriving condition.

Fruit—We gather the following hints principally from Bridgeman:

"The principal business of this month in the fruit garden is summer pruning, which is generally performed with the finger and thumb, by detaching all superfluous shoots and buds; and also to thin the young fruit of Apricot, Nectarine, and other choice trained trees, where it sets too thick or in clusters. The Apricots, so thinned off, and the first principal green fruit, will make excellent pies and tarts.

Currant and Gooseberry shrubs of choice late varieties, trained as espaliers or standards, if very crowded with shoots of the year, should be pruned, and the Gooseberry fruit thinned, to promote its growth and ripening in full perfection.

All trees on espaliers require attention; cut off such superfluous shoots as are not required to be trained in, leaving well-situated middle-sized shoots to supply the place of any old branches that it may be thought necessary to cut away.

Grape Vines should be looked over every week. Cut off all the tendrils and useless young shoots, and stop the shoots before the bunches of fruit. Train up the shoots for bearing next season, and to a proper length, before you stop them.

Newly planted trees should be watered in dry hot weather; an occasional hoeing around them

will also be beneficial, but care must be taken not to injure the roots.

The trained trees and espaliers should be examined frequently, and cleared of dead leaves and insects; which can be done by the hand, with very little trouble.

Defend choice fruit from birds and insects, such as wasps, flies, &c.; the birds may be kept off by nets, and the insects may be decoyed and drowned, by placing phials of strong liquor, honey, or sugared water near the fruit.

If annoyed with ants, place cuttings of reed, hollowed elder or anything of a tube-like kind, in which they will harbour, and may be destroyed by dipping the tubes in hot water.

If mildew appear on Grape Vines, syringe them with water, in which a small quantity of saltpetre and stone lime has been infused, (it need not be over strong.) To prevent any injurious effects from the lime, the vines may be syringed alternately with the liquid and pure water, each two or three times a week. A little sulphur dusted over while the leaves are wet is also a good remedy.

Look over your trained Fruit Trees and Grape Vines; stop the shoots before the bunches of fruit, and train up such shoots as are reserved for bearing next year. Nip off curled and dead leaves, and destroy insects.

Toward the end of this month is the proper season for budding the Nectarine, Peach, Plum, and other species of stone fruit. The Peach stock is often budded when only a year old, but the Plum stock is generally kept in the nursery two or three years.

Apple and Pear stocks may be budded when two or three years old, but those fruits are generally propagated by grafting early in the spring.

A judicious pruning of Peach, Nectarine, and other kinds of young trees is necessary at this season. To prevent the long, straggling growth of limbs which are frequently bare of shoots for some distance from the body of the tree, such limbs should be shortened, which will cause the production of lateral shoots. An annual summer pruning is essential to the well being of a tree, as by shortening the wood of the preceding year's growth, a symmetrical tree containing a good supply of bearing wood may be formed. By this treatment the longevity of a tree will be promoted, provided the work is done with judgment and care, so as not to render the tree impervious to the influence of the sun and air; for, be it remembered, that the head of a tree must always be kept moderately open, for the purposes of giving the fruit the best possible chance of ripening perfectly.

The Strawberry.—In cultivating the Strawberry, an open situation and rich loamy soil, rather strong, is required for most varieties; and from their large mass of foliage and flowers, they must, till the fruit is set, have copious supplies of water. The row culture is best calculated to produce fruit; and frequent renewal insures vigorous plants, as well as large fruit. Some plant them in single rows, from twelve to eighteen inches apart, according to the sorts; others form a bed with four rows. If several beds be intended, a space of two or three feet may be left between each bed as a path; and in the second or third season, the paths may be manured and dug to admit of the runners taking root; by this means, a renewal may be made so often, and the old stools being taken away, leaves spaces between the beds as before. Or new plantations may be made every season; because, after the roots are fairly established, they multiply spontaneously, as well by suckers from the parent stem, as by numerous runners; all of which, rooting and forming a plant at every joint, require only removal to a spot where there is room for them to flourish. If taken off, and planted in rows in August and September, they will produce fine fruit the following season, and will bear in full perfection the second summer; some, however, prefer spring planting, which answers very well, if done in damp weather.

The Flower Garden.—The following hints from Buist's "American Flower Garden Directory" will be found useful and interesting to those who delight in beautiful flowers:—

"Culture of the Heart's-ease or Pansy.—The simplicity and striking beauty of this lovely little flower have attracted notice from the earliest floral times, but it is only within these few years that it has come into high estimation as a florist's flower. Indeed, when the figures and descriptive characters of these "little gems" came first from England to this country, we were almost induced to believe they were exaggerated "pictures of fancy," till we actually cultivated them within these last two years, in our own parterre, upwards of two inches in diameter.

They delight in a situation partially shaded from the hot rays of the sun, either fully exposed to the morning rays till ten o'clock, or the afternoon sun from three o'clock; a soil composed of four parts good loam and one part thoroughly rotted manure, or three parts loam and one part decayed leaves, not less than one foot deep; the soil must not be more elevated than the surrounding surface as they like a good supply of moisture. If they are to be cultivated from seeds, they should be thinly sown about the first of May, or about the end of August or first of September, and very lightly covered with fine soil, giving them very frequent waterings in dry weather. These sown in May will bloom in July, and very profusely in the autumn; but those sown in the latter period will not bloom till early the following spring. When any very esteemed variety is raised, it should be propagated, which is very easily done, either by layers or cuttings, and sometimes by division of the root, but the two former methods are preferable. The best time for laying is about the first of September: an inch or two of the soil may be removed all round the plant, the shoots laid down in the hollow, and covered over with light rich compost. The shoots will root more freely if they get a gentle twist when laying them down. The best period for propagating by cuttings is about the middle of May or September. Cuttings should be chosen from young shoots, about two or three inches long; for when shoots are woody or hol-

low they will either not strike at all or produce unhealthy plants. A shaded but airy situation is preferable, and if the soil is of a light sandy nature, the better success will attend the operation: the cuttings should be firmly inserted from one to two inches deep in the ground, and covered with a glass, or where that convenience is not at hand, they may be shaded during the day with oiled paper, or any similar substitutes In preparing the cuttings, care ought to be taken to cut close to a joint, a rule which should be strictly attended to in making cuttings of every description. When they have fairly rooted and taken a growth, they can be removed in cloudy, moist weather, to their proper allotments. Seeds ought to be carefully collected from the finer sorts, and sown as soon thereafter as convenience will allow, as they deteriorate by long keeping. Many hundreds of named varieties are carefully cultivated in England. A *select* list sent contains *only* three hundred and seventy-four names. To attempt a general or even brief description of them, would be considered prolix and unnecessary; but the following criteria of a fine Pansy has just passed a select committee of the Pennsylvania Horticultural Society:—

"The chief object to be desired is symmetry of the flower. The petals should be large, broad, and flat, lying upon each other so as to form a circle, and prevent anything like angles or intersections of this circular outline. The petals should be as nearly of a size as possible, the two top ones being the largest, but so covered with the two side ones as not to appear disproportioned. The top petals should not wave or bend back. The bottom petal should be broad and two-lobed, flat, and not curving inward; above an inch in breadth is a good size; and the colours should be clear, brilliant, and not changing. The eye should not be too large, and it is accounted finest when the pencilling is so arranged as to form a dark angular spot.

"The flower-stalk should be long and stiff, rather than slender."

Carnations and Pinks.—In order to make the former flower well, if the weather is dry, give them frequent waterings at the root, and tie them up neatly to their rods. *The criterion of a fine Carnation is*—The stem strong and straight, from thirty to forty inches high; the corolla three inches in diameter, consisting of large, round, well-formed petals, but not so many as to crowd it, nor so few as to make it appear thin or empty; the outside petals should rise above the calyx about half an inch, and then turn off in a horizontal direction, to support the interior petals, they forming nearly a hemispherical corolla. The interior petals should decrease in size toward the centre, all regularly disposed on every side; they should have a small degree of concavity at the lamina or broad end, the edges perfectly entire. The calyx above one inch in length, with strong broad points in a close and circular body. The colours must be perfectly distinct, disposed in regular strong stripes, broadest at the edge of the lamina, and gradually becoming narrower as they approach the unguis or base of the petal, there terminating in a fine point. Those that contain two colours upon a white ground are esteemed the finest.

The criterion of a double pink.—The stem about twelve inches, the calyx smaller, but similar to a carnation; the flower two inches and a half in diameter; petals rose edges; colour white and pure purple, or rich crimson; the nearer it approaches to black the more is it esteemed; proportions equal as in carnation. Those that are very tasteful with these flowers are attentive to the manner of their opening. Where the calyx is deficient in regular expansion, to display the petals; that is, where there is a tendency to burst open on one side more than on the other, the opposite side in two or three different indentations should be slit a little, at several times, with the point of a small sharp knife, taking care not to cut the petals, and about the centre of the calyx tie a thread three or four times round to prevent any further irregularity. Some florists and connoisseurs place cards on them. This is done when the calyx is small. Take a piece of thin pasteboard, about the size of a dollar, cut a small aperture in its centre to admit the bud to pass through. When on, tie it tight to the rod, to prevent the wind from blowing it about; and when the flower is expanded, draw up the card to about the middle of the calyx, and spread the petals one over the other regularly upon it. When these plants are in flower, their beauty may be prolonged by giving them a little shade from the mid-day sun by an awning of any simple description. Where they are in pots, they can be removed to a cool shady situation (but not directly under trees.)

Of Laying Carnations and Pinks.—This is a necessary and yearly operation to keep a supply of plants, and likewise to have them always in perfection. As the process of laying, though simple, may not be known to all who are desirous of cultivating these plants, we will give an outline of the mode of operation. Provide first a quantity of small hooked twigs (pieces of *Asparagus* stems are very suitable,) about three inches long, for pegging the layers down in the earth. Select the outward, strongest and lowest shoots that are round the plant; trim off a few of the under leaves, and shorten the top ones even with the knife, and then applying it at a joint about the middle of the under side of the shoot, cut about half through in a slanting direction, making an upward slit toward the next joint, near an inch in extent; and loosening the earth, make a small oblong cavity one or two inches deep, putting a little fresh light earth therein. Lay the stem part where the slit is made into the earth, keeping the cut part open, and the head of the layer upright one or two inches out of the earth; and in that position peg down the layer with one of the hooked twigs, and cover the inserted part to the depth of one inch with some of the fresh earth, pressing it gently down. In this manner proceed to lay all the proper shoots of each plant. Keep the earth a little full around the plant, to retain longer the water that may be applied. Give immediately a moderate watering, with a rose watering-pot, and in dry weather give light waterings every evening. Choose a

cloudy day for the above operation. In about two months they will be well rooted.

J. F.

Orchard Houses for the United States.

[We have just received the following letter upon this subject, for the *Country Gentleman*, from Thomas Rivers, Esq., of Sawbridgeworth, Hertfordshire, England, the noted Rose Grower, and author of the treatise on the "Orchard House," lately republished at New-York. Mr. R. has also favoured us with another communication, the appearance of which we are obliged to defer until next week. Eds. Co. Gent.]

Sawbridge, England, May 17, 1860.

I observe from an advertisement in the Horticulturist, that Messrs. Saxton & Co., have published my little book, "The Orchard House." I am rejoiced at this, for gardening knowledge cannot be distributed too widely. I have, however, some fears that what is good sound practice here, in orchard-house culture, may be, to a certain extent, unfitted for your climate, and so I am sure you will excuse me if I give a few words of caution.

1st. Your winters are so severe that the utmost precaution must be taken to keep the roots of the trees in pots, protected from frost. This must be done by mulching them to a great extent, say at least one foot in depth over the surface of the pots, and care should be taken that it fills up all the interstices between the pots.

2d. Your summers are so scorching, compared to ours in England, that instead of ventilating shutters in each side of a 14 feet wide house being 1 foot in depth, they should be two feet, and perhaps it would be advisable to have all the boards below the glass at the sides removable, so that in summer all the lower boards below the glass, as described in page 16 of the 7th edition, should be taken away, and a stout net placed in lieu of them, thus keeping out heavy gales of wind, birds, &c., and yet admitting abundance of air.

I am however inclined to think that in your climate, apricots, plums, and nectarines, should be placed out of doors at the end of June, to ripen their fruit, for I apprehend by that time the ravages of the curculio will be over.

I say this, of course, with due submission, for I only judge of the effects of your climate from what I read. I cannot help thinking that with the aid of these cheap well ventilated houses, you will be able to circumvent your great enemy to smooth-skinned stone fruits, the curculio, and grow apricots, plums, and nectarines, to great perfection.

In houses of 20 feet in width, I should recommend the sides open, and openings in the roof (here unnecessary,) to let off the air heated by your burning sun. These few hints are merely "a word to the wise," for your clever amateur cultivators will soon learn how to adopt orchard houses to the exigencies of your climate. Such houses will, to a certainty, protect the blossom buds of peaches, nectarines and apricots from injury by your severe frosts in winter, the blossoms in spring, and I think the fruit of the latter two from the curculio. Thos. Rivers.

—*Country Gentleman.*

The Dairy.

Cheddar Cheese.

Morton's "Hand-Book of Dairy Husbandry," gives the following account of the manner in which this celebrated cheese is made:

Cheddar Cheese-making differs from that already described, chiefly in the scalding of the curd; which is done by heating a portion of the whey, and letting the curd remain in it for a considerable time, at a temperature even above the natural heat of the milk. The following description of the dairy management of Mr. Harding, at Compton Dando, Somersetshire, is given by the deputation from the Ayrshire Agricultural Society, who visited the farm in 1854. The milk is poured from the pails through a sieve into a receiver outside, from which a pipe conveys it through the wall to the cheese-tub or to the coolers. A canvas bag is also placed over the inside end of the pipe, so that a double precaution is used against impurities entering with the milk.

The rennet is prepared much in the way that it is done in many Ayrshire dairies. Mrs. Harding steeps five vells at once, and this usually suffices for two weeks, in which time about 21 cwt. of cheese may be made. The vells appear to have been carefully cleaned and preserved.

Immediately after the morning milking, the evening and morning milk are put together into the tub. The temperature of the whole is brought to 80 degrees by heating a small quantity of the evening milk. In spring and towards winter a small quantity of annatto is used to improve the color of the cheese. It is put into the milk along with the rennet at seven o'clock. After the rennett is added, an hour is requisite for coagulation. At eight o'clock the curd is partially broken and allowed to subside a few minutes, in order that a small quantity of whey may be drawn off to be heated. This whey is put into a tin vessel and placed in a boiler in an adjoining apartment, to be heated in hot water. The curd is then most carefully and minutely broken, and then as much of the heated whey is mixed with it as suffices to raise it to 80 degrees—the temperature at which the rennet is added. Nothing more is done to it for another hour.

A little after nine o'clock a few pailfuls of whey are drawn off and heated to a higher temperature than at eight o'clock. The curd is then broken as minutely as before, and after this

is carefully done, an assistant pours several pailfuls of the heated whey into the mass. During the pouring in of the whey the stirring with the breakers is actively continued in order to mix the whole regularly, and not to allow any portion of the curd to become overheated. The temperature at this time is raised to 100 deg., as ascertained by the thermometer, and the stirring is continued a considerable time, until the minutely broken pieces of curd acquire a certain degree of consistency. The curd is then left half an hour to subside.

At the expiry of the half hour the curd has settled to the bottom of the tub. Drawing off the whey is the next operation. The greater proportion is lifted in a large tin bowl, and poured through a hair sieve into the adjoining coolers. As it runs into the leads it appears to be very pure. When the whey above the mass of curd is thus removed, a spigot is turned at the bottom of the tub, and the remainder is allowed to drain off, which it does very rapidly without any pressure being required. To facilitate this part of the work the tub is made with a convex bottom, and the curd is cut from the sides of the tub and placed on the elevated center. It is carefully heaped up, and then left for an hour with no other pressure than its own weight. After this interval it is cut across in large slices, turned over once on the center of the tub, and left in a heap as before for half an hour. The whey drips away towards the side of the tub, and runs off at the spigot; and no pressure being applied, it continues to come away comparatively pure. After undergoing these easy manipulations, and lying untouched during the intervals that have been mentioned, the curd is ripe for the application of pressure. But great care is taken not to put it into the vat to be pressed at too high a temperature. If the heat be above 60 deg., and it usually is higher at this time, the curd is broken a little by the hand and thrown upon a lead-cooler, until it is brought down to the desired temperature.

The after-management of the cheese resembles that of Cheshire. A little salt, 1½ lbs. per cwt., or thereabouts, is added to the crumbled curd, and it is mingled and broken by the curd mill. The cheese vats are placed under the machine, and are piled one above the other as the curd falls down. A cloth is put over each vat when the breaking is over, the curd is reversed in the cloth, put back into the vat, covered up, and placed in the press for about three-quarters of an hour. After this, the cheese is taken out, and a cloth wrung out of warm water is put on it. It is again changed at two and at six o'clock, after which dry clothes are put on it. Care is taken that the cheese fills the vat properly. To accomplish this, the vats, at making up, are filled rather full, and the edges of the cheese are pared in the afternoon. Next morning the cheese is rubbed on both sides with salt, and the same cloth is put on again. On the third morning it is treated in a similar manner. The cheese is put into the vat without a cloth on the fourth morning, and a little salt is rubbed over it to keep it from adhering to the wood. After the fourth morning it is reversed in the vat, without a cloth, each morning until the process is complete, about the sixth or seventh morning.

We may mention here that Messrs. Cokey of Frome, make an apparatus by which a jacketed cheese tub of tin may be surrounded by a stream of hot water, and so the milk and whey retained at any temperature that is required, without the necessity of removing large quantities of milk or whey to a boiler every time of cheese-making for the purpose of being heated.

Butter Making.

The following article on Butter Making is contributed to the *Rural New Yorker* by A. D. Burt, who has taken many premiums for butter at fairs in New York State, where, generally speaking, you find good butter. The remarks are useful and practical and can be understood by any one.

First—I consider that it is absolutely necessary to have good, sweet pasturage, with an abundance of the best grasses, and an unstinted supply of pure fresh water, not such detestable stuff as can be found in stagnant pools, but such as you behold when you "see the rill from the mountain joyously gleam," where the cows can slake their thirst and feel invigorated. The pasture should have shade trees sufficient to accommodate all, without the necessity of disturbing each other in the excessive heat of midsummer. Then have cows suitable for a butter dairy—not those that give the largest amount of milk, but the richest, yielding a large supply of the rich orange-colored cream. The cows should be salted regularly, at least twice each week, as it will keep them in health and in a thriving condition, which is needful for profit. Always be sure to drive them carefully to and from the pasture; never allow them to be worried by boys or dogs, as it will tend to heat the milk and often cause great delay in the churning, which some will impute to witchcraft, and that correctly,—but the witchery, I believe, is in over-heating the inoffensive cow and often causing injurious effects upon the poor dumb beast.

Always be regular in your time for milking, and let one person (as much as possible,) milk the same cow or cows, and be sure to milk them as quick and thoroughly as possible, for you thereby save the richest part, and often save knots from forming in the teats, or causing a milk fever, or inflammation in the udder. A clean, cool, airy and light room (the lighter the better,) is the most suitable place, on racks instead of shelves is considered the best, as the

air can then circulate freely around the pans, cooling the milk more evenly. A common house cellar will very seldom be found a suitable place for setting milk, and the cream or milk in a cellar should *never* be placed on the floor or bottom, for if there is any impure gas in the cellar it will settle to the bottom, causing the cream to be bitter, and a poor quality of butter will be the result.

After setting the milk away it should never be disturbed again until it is ready to be skimmed, which should be done as soon as possible after the cream has fully risen and before the milk has curdled, say in thirty-six hours, (never more than forty-eight,) and often it must be done in twenty-four hours; all the gain there is in quantity after about twenty-four hours setting, you must of necessity lose in quality, and in greater ratio. Keep the cream in stone pots or jars, (tin pails will rust the cream,) in a cool place in summer, (moderately warm in winter.) Sprinkle a little salt on the bottom of the jar. Always stir the cream well together from the bottom every time you add a fresh skimming of cream. Never churn until at least twelve hours after the last cream has been put into the jar.

After the cream has been churned and the butter properly gathered, it should then be washed in cold water, and the water changed two or three times, or until there is no coloring of milk about the water; the whole of the water must then be worked from the butter, (for if left it will sour it,) and should be salted with about twelve ounces of the best Ashton dairy salt, well pulverized, to sixteen pounds, or three-fourths of an ounce of salt to each pound of butter. The salt should be evenly worked through the entire mass. Here I know I differ much, with many of our butter-makers, in the quantity of salt, and also in the amount the butter should be worked; but I have taken the first premium, at our County Fair (in the fall,) on a June-made butter that was salted with half an ounce of salt to each pound, and packed immediately, without a second working, and that butter, when thirteen months old, was just as sweet as when first packed; any one wishing for better, ought to be obliged to go without any.

Always pack immediately, as it tends to make it salvy and streaked if it is worked a second time. It should be packed in jars, if for home use; if for market, in the best oak firkins or tubs, which should be well soaked with cold water, then scalded and steamed by pouring boiling water in, and covering to keep the steam for a short time, say twenty to thirty minutes. Then pour off the water, and scrub the firkin with salt, or with soda, or saleratus and salt; then wipe out the surplus salt and give it a slight rinse, and when it is cooled it is ready for use. When the firkin, or jar, is as full as it should be, cover the butter with good sweet brine, to exclude the air, and if you keep it in a suitable place after this, my word for it you will have butter good enough to set before our next President, the fourth of March, 1861, let him be chosen from whatever party or section of the United States he may.

Poultry.

Raising Young Turkeys.

Richardson, in his work on the Domestic Fowl, has these remarks:

Many writers recommend a vast deal of quackery in the treatment of the young chicks. Some go the length of ordering them wine, pepper, bathing in cold water, etc. It is far better to let them alone. For a few hours after hatching, the chicks require no food at all; and then, instead of cramming them—a process in which you are likely to break the tender beak of the little chick—chop up a few hard eggs with boiled nettle, parsley and a little bread or curd; make this into a paste, and present it to the birds in the palm of your hand, or place it before them on a stone, taking care that the hen does not rob them. In supplying them with water, be careful to put it into very shallow vessels, that they cannot wet themselves; for the least moisture appears fatal to them. As the turkey chick does not seek its food immediately on leaving the egg, and the hen seems incapable of instructing her little offspring how to do so, it is a practice with some to put a few common hen's eggs among the turkey's (which must be done nine or ten days after setting,) that these coming out with the little turkeys may, by force of example, teach them to provide for themselves.

Unless in very warm weather the hen and chicks should be housed for a month. If they appear drooping, put powdered carraway seed and a little Cayenne pepper into the food. If you mix the food with milk, let it be previously boiled. Unboiled milk will purge the chicks; but for my own part I prefer pure water.

At the age of about two months occurs the most critical period in the life of a turkey, called "shooting the red," or the time when the head and neck acquire the reddish color of adults. This crisis once past the birds may be regarded as past danger, and exchange the name of chicks for that of turkey poults. The only treatment necessary when a bird is shooting the red, is to furnish nutritive food with a small pinch of Cayenne pepper. Bruised hemp-seed is also found serviceable.

Take care that young turkeys never go out on any account, (except in dry weather,) until the dew is off the ground; and this should be adhered to till they get to be the size of an old partridge, and have their backs well covered with feathers; and in wet weather they should be kept under cover all day long. As to the feeding of them when young, many nice things are recommended—hard eggs, chopped fine, with crumbs of bread, and a great many other

things, but that which I have seen used, and always with success, and for all sorts of young poultry, is milk turned into curds. This is the food for young poultry of all sorts. Some should be made fresh every day, and if this be done, and the turkeys be kept warm, not one out of a score will die. When they get to be strong they may have meal and grain; but still they always love the curds. When they get their head feathers, they are hardy enough; and what they want is room to prowl about. It is best to breed them under a common hen, because she does not ramble like a hen turkey; and it is a very curious thing that the turkeys bred up by a hen of the common fowl do not themselves ramble much when they get old.

Domestic.

Currant Wine.—This article as usually manufactured is rather a cordial than a wine, and is entirely inferior to the common wine; but when properly made, it is a very superior, healthful beverage, particularly for summer drink, when fully diluted with water. Before pressing the juice from the currants, pass them between a pair of rollers to crush them, after which they must be placed in a strong bag, and they will part with the juice readily with light pressure, such as a common screw, heavy weights, &c. To each quart of juice add three pounds of double refined loaf sugar—single refined sugar is not sufficiently pure—then add as much water as will make one gallon. Suppose the cask intended to be used is 30 gallons. In this put 30 quarts of currant juice, 90 lbs. of double refined sugar, and fill the cask to the bung with water; roll it over until the sugar is all dissolved. This will be told by its ceasing to settle in the barrel. Next day roll it again, and place it in a cellar where the temperature will be sure to be even. Leave the bnng loose for the free admission of air. In the course of one or two or three days, fermentation will commence. By placing the ear to the bunghole a slight noise will be heard such as may be observed when carbonic acid is escaping from champagne or soda water. Fermentation will continue for a few weeks, converting the sugar into alcohol. As soon as this ceases, drive the bung in tightly, and leave the cask for six months, at the end of which time the wine may be drawn off perfectly clear, without any excess of sweetness.

Chloride of Lime for Rats.—A correspondent of the *Gardener's Monthly* says: "I tried the effect of introducing into the entrances of their numerous holes, runs, or hiding places, small portions of chloride of lime or bleaching powder, wrapped in calico and stuffed into the entrance holes, and thrown loose by spoonsful into the drain from the house. This drove them away for a twelvemonth, when they returned to it. They were treated in the same manner with like effect. The cure was complete. I presume it was the chlorine gas which did not agree with their olfactories.

Cure for Corns.—A correspondent of the London *Field*, in reply to an enquiry for a remedy for corns, says—"If 'A Poor Cripple' will take a lemon, cut a piece of it off, then nick it so as to let in the toe with the corn, the pulp next the corn, tie this on at night so that it cannot move, he will find the next morning that, with a blunt knife, the corn will come away to a great extent. Two or three applications of this will make 'A Poor Cripple' happy for life; and I shall be glad to hear the result."

Miscellaneous.

White Clover in Pastures.—The growth of white clover on soils natural to its production, may be encouraged and promoted by a top-dressing of plaster and ashes. Its chief value is for pasture, as it is of too dwarf a growth to give much of a hay crop. A writer in the Boston Cultivator says, "there is an advantage in pasturing white clover which does not strike every farmer. Each joint furnishes a fresh root, (and of course a fresh plant,) whenever such joint comes in close contact with the soil, consequently the more it is trodden the thicker it will spring up. Hence one reason why it grows most luxuriantly near the bars and gateways of our pastures, where cattle often congregate." Many farmers have observed this last mentioned fact without getting hold of the reason thereof. The natural growth of various grasses, self-sown upon all our soils, is a matter of curious interest to the naturalist and the farmer observant of nature.—*Country Gentleman.*

To Measure Hay Stacks.—More than twenty years since, the following method for measuring hay, was taken from an old publication. I have both bought and sold by it, and I believe it may be useful to many farmers: Multiply the length, breadth, and height into each other, and if the hay is somewhat settled, ten solid yards make a ton. Clover will take from ten to twelve solid yards per ton. Five hundred and twelve cubic feet in a compressed or well settled mow is regarded equal to a ton of good hay.—*Southern Planter.*

Farmers! Plant before the Full Moon.—Upon the growth of plants the moon exercises a remarkable influence. The chemical action of light is necessary to their principal work, the absorption of carbon from the carbonic acid gas of the atmosphere. This work all plants carry on during the day, and in the night they sleep, except when the moon shines. She wakes them and sets them at work. So the farmers who plant only just before the full moon are right, and the scoffers who call them superstitous are

themselves the foolish ones. For, if sown before or near new moon, the young plants get above ground just at the full, when the tender things need sleep. But if sown just before the full, they come up about new moon, pass their babyhood under the soothing influence of dark nights, and when the full moon comes are sturdy urchins, able to work night and day.—*English Paper.*

The Nature of Women.—As my father used to say of women, you must study their nature. When he lived at Sheffield, and his establishment was small, he never rang the bell for the maid, but, when he wanted her, always went out into the street to call her; he said women were sure to be found looking out of the window. In like manner, he always hired the prettiest girls he could find; they waited for the men to run after them, but the ugly ones always wasted their time running after the men; one stay'd at home, and the other didn't.—*The Season Ticket.*

ALLITERATIVE POETRY.

Alphabetical Assertions, Briefly Collected; Describing Elegant Flirtations, Generally Happening In Joking, Kissing, Larking, Merry-making, Nutting, (Opportunity Producing Queer Rumpusses), Small Talk Under Volk's Windows, 'Xciting Youthful Zeal, &c.

"Arthur Asked Amy's Affection,
Bess, Being Benjamin's Bride,
Coolly Cut Charles's Connection;
Deborah Dickey Denied.
Eleanor's Eye Efficacious,
Frederick's Fatality Feels;
Giles Gained Georgiana—Good Gracious!
Harry Hates Helen's High Heels.
Isaac Is Isabel's Idol,
Jenny Jeers Jonathan Jones;
Kath'rine Knows Knock Kneed Kit Kriedel.
Love's Leering Lucy's Long-bones.
Mary Meets Mortifications,
Nicholas Nancy Neglects,
Oliver's Odd Observations
Proves Peter Poor Patty Protects!
Quaker Quintillian's Queer Quibbles
Red Rachel's Reasons Resist;
Soft Simon's Sympathy Scribbles
Tales To Tall Tabitha Twist.
Urs'la Unthinking, Undoing
Volatile Valentine's Vest,
William's Wild Wickeder Wooing
'Xceeds Youthful Zelica's Zest."

Origin of various Plants.—The annual meeting of the Paris Society of Acclimatation, according to the *Revue Horticole*, the present year manifests a flourishing condition in that popular and useful body. M. St. Hilaire, the President, delivered an interesting discourse, and the Aice President, M. de l'Huys, read a paper upon the most celebrated gardens of antiquity, in which he glanced at the origin of the various new plants derived from the East, and, later, from the New World. We translate from this part of his interesting memoir the following facts:

Cereals.—Wheat and buckwheat came from Asia—rye from Siberia—rice from Ethiopia.

Vegetables.—The cucumber from Spain—the artihocke from Sicily and Andalusia—the chervil from Italy—cress from Crete—lettuce from Coos—the white cabbage from the North—the red and green cabbage, the onion and parsley from Egypt—the cauliflower from Cypress—spinach from Asia Minor—asparagus from Asia—the pumpkin from Astracan—the eschalot from Ascalon—the bean from India—the radish from China—the melon from the East and from Africa—the potato and the Jerusalem artichoke from America.

Fruits, &c.—Asia sent forth the filbert, the pomegranate, the walnut, the quince, and the grape—Armenia the apricot, Media the citron, Persia the peach, India the orange, Mesopotamia the fig, Pontus the cherry and the hazelnut, Lydia the chestnut, Syria the plum, Mauritania the almond, and Greece the olive.

Among plants of different uses may be mentioned the Coffee, originally from Arabia, Tea from China, the cacao (cocoa) from Mexico, tobacco also from the New World, anise from Egypt, fennel from the Canaries, the clove from the Moluccas, the castor oil bean from India, &c.

Trees.—The horse-chestnut came from India, the laurel from Crete, the elder from Persia, &c.

Flowers.—The narcissus and carnation came from Italy, the lily from Syria, the tulip from Cappadocia, the jasmine from India, the starwort from China, the nasturtium from Peru, the dahlia from Mexico, &c.

Is it not time to ask—queries M. Barral after the above quotation—if any vegetation at all naturally belongs to the Gauls? He claims, at least, the oak tree, but adds that the success of past "acclimatations" should encourage every nation to try new ones.—*Country Gentleman.*

Two Minute Sermons to the Girls.—Ladies—caged birds of beautiful plumage, but sickly looks—pale pets of the parlour, who vegetate in an unhealthy atmosphere like the potatoe germinating in a dark cellar, why do you not go out into the open air and warm sunshine, and add lustre to your eyes, bloom to your cheeks, elasticity to your steps, and vigor to your frames? Take morning exercise, let loose your corset strings, and run up the hills for a wager, and down again for fun; roam the fields, climb the fences, leap the ditches, wade the brooks, and after a day of exhilarating exercise and unrestrained liberty, go home with an appetite acquired by healthy enjoyment. The blooming and beautiful young lady—rose-cheeked and bright-eyed—who can darn a stocking, mend her own frocks, command a regiment of pots

and kettles, feed the pigs, milk the cows, and be a lady when required, is the girl that young men are in quest of for a wife- But you pining, screwed-up, wasp-waisted, doll-dressed, consumption-mortgaged, music-murdering, and novel-devouring daughters of fashion and idleness—you are no more fit for matrimony than a pullet is to look after a brood of fourteen chickens. The truth is, my dear girls, you want less fashionable restraint and more liberty of action; more kitchen and less parlour; more leg exercise and less sofa; more pudding and less piano; more frankness and less mock modesty. Loosen your waist strings, and breathe in the pure atmosphere, and become something as good and beautiful as nature designed.

Widow: Don't you mean to marry, my dear sir?

Confirmed bachelor: No. I'd rather lose all the ribs I've got than take another.

Transactions.

Meeting of the Board of Agriculture.

HAMILTON, JUNE 19, 1860.

The Board met this day, pursuant to call of the President, at noon, at the Royal Hotel.

Present:—Messrs. E. W. Thomson, President, R. L. Denison, Hon. D. Christie, Hon. G. Alexander, W. Ferguson, J. Wade, President of the Agricultural Association; Dr. Beatty, President of the Board of Arts and Manufactures; J. E. Pell, Vice-President of do.

The minutes of last meeting were read and approved.

The following communications were submitted:—

From South Wellington, West Northumberland, North Leeds and Grenville, South Ontario, Co. Haldimand, South Grenville, Seneca, Oneida and North Cayuga, Etobicoke, North Simcoe, North Lanark, Rochester and Maidstone, South Wentworth, Co. Bruce, City of Hamilton, Orillia, South Dorchester and West York Agricultural Societies, all objecting to certain proposed alterations in the Agricultural Statute.

From Mr. J. S. Wetenhall, Secretary and Treasurer of the Hamilton Electoral Division Agricultural Society, enquiring whether the members of that Society would be admitted as members of the Provincial Association this year, if the sum of Thirty Dollars, which the Society was in debt from last year, should be deducted from the funds of the present year when paid over to the Treasurer of the Provincial Association.

From Mr. Hutton, Secretary of the Bureau of Agriculture, in accordance with an address of the Legislative Assembly to His Excellency the Governor General, asking for a return of the amount of public money annually granted to the Agricultural Societies in Upper Canada, since the year 1850, and the amount annually contributed by the Societies as a basis for the grant, the amount annually granted to the Board of Agriculture since its establishment, showing the several objects on which the same has been expended, and the amount expended on each. The Secretary also submitted a draft of the return furnished in accordance with this communication.

From Hon. H. H. Killaly on the part of the Department of Public Works, desiring the Board to place a Fire Hydrant near the Government House Stables now in occupation of the Board.

From Serjeant Dunbar, asking for some compensation in consequence of having been ejected from the Caretaker's House on the Exhibition Grounds, Toronto, by the Mayor of that city.

From Professor Buckland, from Quebec, on his way to England, suggesting the expediency, for certain reasons, of leasing the Experimental Farm for a limited period.

From Mr. Bawbell, Secretary of Otonabee Agricultural Society, stating that the County of Peterboro' Agricultural Society had withheld from them a part of their due proportion of the public grant, and requesting that the Board would cause the amount to be paid to them.

From Mr. E. A. McNaughton, Newcastle, suggesting the desirableness of awarding medals at the Provincial Exhibition, in some cases, in place of money prizes.

From the Senate of the University of Toronto, declining to take the Experimental Farm off the hands of the Board of Agriculture on the conditions upon which the Board originally entered into possession of the same, at present.

From Mr. Hutton, of June 8th, embodying copy of Order in Council, dated May 28th, 1860, recommending the appropriation of "$10,000 from the vote for expenses connected with the visit of His Royal Highness the Prince of Wales, in aid of the Agricultural Exhibition to be held in Hamilton, it being important to afford every assistance in making the display of the Agricultural productions and industry of the Western part

of the Province as general and useful as possible, and thus to afford his Royal Highness and his suite an opportunity of judging of the wealth and prosperity of Western Canada." Mr. Hutton further stated that the Government had yet no exact information as to the time of the Prince's visit.

From F. W. Stone, Esq., second Vice-President of the Association, suggesting the propriety of offering handsome premiums for herds of Cattle, say for one bull and 4 cows and heifers, each herd, and making certain other suggestions in regard to the revision of the Prize List, and the general management of the Exhibition.

From Mr. Hutton, June 12, containing further information in regard to the appropriation in aid of the Exhibition.

From the Department of Public Works, Quebec, June 13th, requesting the Board to place the premises now occupied by them on the Government House property at the disposal of Mr. Killaly for the purpose of being got ready for the visit of the Prince of Wales and his suite.

From Dr. Rees, of Toronto, presenting to the Board an interesting and valuable work on the Cultivation and Preparation of Hemp, published by Robert Wissett, of the East India Company's Service, London, 1808.

From Mr. E. C. Fisher, Etobicoke, offering to fit up a portion of his mill on the River Humber, as a Flax Mill, on condition of receiving an advance from the Board, to be afterwards repaid.

Reports were submitted from the Special Committee appointed at the last meeting on the subject of Drainage, the Experimental Farm, amendments to the Act, auditing the Accounts, &c. The Committee reported that they had leased the Experimental Farm to Mr. F. Shanly for two years, at £100 per annum, of which amount Mr. Shanly will pay £10 per annum in the making of a road upon the premises, Mr. Shanly paying the expense of putting in the spring crops, &c., amounting to $50.62, and that they had made arrangements to dispose of the straw, grain, tools, &c., on the premises.

On motion the reports of the Committees were adopted.

The Board then adjourned, at 1 p. m. for the purpose of receiving the Local Committee.

1 p. m.

The Local Committee met, Sir Allan MacNab in the chair. The Secretary of the Committee read the minutes, giving a general report of their progress in erecting the buildings and preparing the grounds, and after some conversation in regard to the arrangements the Committee adjourned.

The Board resumed.

The Treasurer submitted a statement of the Receipts and Expenditure of the Board and of the Association for the Financial year ending September 20, 1859. On motion the report was adopted.

At 4 p. m. the Board adjourned to meet the Local Committee on the grounds, for the purpose of observing the progress making in the erection of the buildings, stalls, &c., and spent some time in examining the same.

After returning to the hotel, and having some general conversation with the Local Committee on the details of the preparations, the Board adjourned to Wednesday morning 20th.

HAMILTON, June 20th, 1860.

The Board met at 6 a. m.

Present: The President, Messrs. Denison, Christie, Ferguson, Wade, Beatty.

The minutes of yesterday were read and approved.

The Secretary submitted a letter from Mr. Burnham, regretting his inability to attend the meeting of the Board, in consequence of being obliged to be present at a meeting of the County Council.

Mr. Wetenhall's letter, read yesterday, was taken into consideration, and it was

Resolved,—That the funds of the Hamilton Electoral Division Society of this year be accepted as entitling the members to become members of the Provincial Association, in accordance with resolution of the Board in February, less the sum of thirty dollars debt of the Society from last year, but this allowance is not to be considered as any precedent for the future.

Serjeant Dunbar's letter was then considered, and it was

Resolved,—That the Treasurer be instructed to pay Samuel Dunbar the sum of thirty dollars in full compensation for loss suffered by him by the action of the Corporation of the City of Toronto in turning him out of the house provided for his residence, as caretaker of property belonging to the Association, by this Board.

Mr. Bawbell's letter was then taken up,

and the Secretary was instructed to communicate to him that the Board could not, with their present information upon the case, interfere with the appropriation of the public grant by the County of Peterboro' Society, but that if the Township Society had not received their proper proportion, their best course would be to represent the facts explicitly to the Directors of the County Society, and in case of still not obtaining redress to refer the matter to the Division Court.

Mr. E. A. McNaughton's letter was discussed, and it was

Resolved,—That for the future this Board present medals to those parties who obtain 1st premiums in certain classes, at the Provincial Exhibition, if preferred by them, and that the design and all the details be prepared by a committee appointed to revise the prize list.

Resolved,—That Col. Thomson, Mr. Wade, Mr. Denison, Dr. Beatty, Mr. Pell, and Mr. Edwards, Secretary of the Board of Arts and Manufactures, be a Committee to prepare the Prize List for the approaching Exhibition.

Mr. Hutton's letters in reference to the additional public grant of $10,000 appropriated by order in Council in aid of the Exhibition, were considered, and it was agreed that as it appeared that one half or more of this amount was to be paid by Government to the local committee, the committee should defray all the expenses of decorations, and that no charges for this purpose will be paid by the Board.

Mr. Stone's letter in reference to the arrangements for the Exhibition was discussed, and referred to the committee on the prize list.

Resolved,—That the thanks of this board be presented to Dr. Rees, of Toronto, for the interesting work on the cultivation and manufacture of Hemp, presented by him to the board.

The subject of appointing Judges for the Exhibition was considered, and the Secretary was instructed to write to the different County Societies, requesting them to nominate suitable persons, in the same way as had been done last year.

On a communication being submitted from Mr. Hurlburt, of Hamilton, it was

Resolved,—That the committee on the prize list be authorized to offer special prizes for collections representing the Natural History of the Province in Fish, Birds, Wild Animals, Woods and Minerals.

Resolved,—That no visitors to the exhibition be admitted to the grounds on horseback, or in carriages.

Resolved,—That a general superintendent for the exhibition grounds and buildings be appointed by this board, and that the committee on prizes be instructed to submit a detailed plan for the efficient superintendence of the various departments of the exhibition.

Resolved,—That in answer to Mr. Fisher's letter, the Treasurer be authorised to advance the sum of Three Hundred Dollars on the Flax Mill being erected and approved by the committee, out of the special fund appropriated for that purpose.

The Board adjourned at 9 a.m., on invitation of the corporation of the city and the local committee, to visit the new Hamilton City Water Works.

The Board resumed at 2 p.m.

Resolved,—That the Board have had much pleasure in witnessing the active progress making in the erection of the buildings, and the preparation of the grounds for the exhibition, and the superior and permanent character of the work. They also desire to record the great gratification they have derived from their visit to the magnificent and costly works for supplying the City of Hamilton with water, not only in the greatest abundance and purity for the use of the inhabitants, but in such quantity, and with such a pressure, as to constitute the most efficient and immediate protection against fires; and they are of opinion that these works reflect the highest credit upon the enterprise and public spirit of the city, and upon the talent and ability of the engineers and contractors who executed the work.

After discussing and arranging some further business, principally relating to matters of detail, the Board adjourned.

Editorial Notices, &c.

The Scientific American.—This is one of the most interesting and useful publications which comes to our table. It is a weekly publication, devoted to popular science, new inventions, and the whole range of mechanic and manufacturing arts. The *Scientific American* has been published for fifteen years, by the Patent Solicitors, Messrs. Munn & Co., New-York; and has attained, we are informed, nearly 30,000 subscribers, which is good evidence that it is appreciated by the public.

The illustrated descriptions in this paper of the most important improvements in steam and agricultural machinery, commend it to the Engineer and Farmer; the new household inventions and shop tools which are illustrated by engravings and described in its columns, with the practical receipts contained in every number, render the work desirable to housekeepers, and very valuable to every mechanic or smith who has a shop for manufacturing new work, or repairing old.

The *Scientific American* is the inventor's advocate and monitor; the repository of American inventions, and the best popular authority on law, and all business connected with Patents. The Official List of Claims, as issued weekly from the United States Patent Office, in Washington, is published regularly in its columns. All the most important Patents issued by the Patent Office are illustrated and described in its pages.

It is the best, the largest and cheapest paper devoted to Science, Mechanics, Manufacturers, and the Useful Arts published in America. Hon. Judge Mason, formerly Commissioner of Patents, is engaged with the publishers in their Patent Ageney department, and as a writer on Patent Laws and Practice, gives able assistance in the columns of the paper.

The *Scientific American* is published once a week, (Saturday,) each number containing 16 pages of Letterpress, and from 10 to 12 original Engravings of New Inventions, consisting of the most improved Tools, Engines, Mills, Agricultural Machines and Household Utensils. Price $2 per annum.

A new volume commences on the 1st July, and this is therefore a convenient time to subscribe. On remitting $2 by mail to the publishers, Munn & Co., 37 Park Row, New-York, the person remitting will be entitled to receive the paper one year. The publishers express their willingness to mail a single copy of the paper to such as may wish to see it without charge.

Volume of 1858.—Having printed a large edition of the Journal and Transactions of 1858, and had several hundred copies left on hand, they have been bound in paper covers, by order of the Board, and will shortly be distributed to the Secretaries of Agricultural Societies, several copies to each, gratuitously, for the use of their respective societies, and to serve as specimen copies, although the work has been greatly improved since that volume was published. When the Secretaries of Societies therefore receive their copies, they will please understand from this, the occasion of their being sent.

Our Number for July.—We have commenced the half year with an enlargement of the size of the column, by which the amount of intelligence will be considerably increased. The price for the 12 months from the 1st July to the end of the year, which will alone form a good sized volume of 384 pages, will be only quarter of a dollar, and one extra copy will be given as a bonus with every eight copies ordered and paid for in advance. We trust that a great many farmers who have not yet taken the Agriculturist, will be induced to invest the sum of twenty-five cents in giving it a trial, by way of experiment, for the remainder of the year. We can also furnish the back numbers from the 15th May at 30 cents per copy to the end of the year.

To Secretaries of Societies.—We make use for this number of our list of officers of this year in sending the free copies. Should any gentleman therefore receive a copy who has not heretofore been in receipt of it, he will understand the reason.

To Treasurers of County Societies.—There are still a good many affidavits of the amount of subscriptions of Societies to be received. They should be forwarded immediately. We have received several letters enquiring what the

amount of the public grant will be this year. Our correspondents will find this question answered in previous numbers of the *Agriculturist*. The amount will be the full sum to which each Society is entitled under the Act 20 Vic., cap. 23.

Market Intelligence.

TORONTO MARKETS.

Toronto, June 30, 1860.

Fall Wheat—$1 30 a $1 40.

Spring Wheat—$1 10 a $1 14.

Oats—31c a 33c.

Peas—58c a 60c.

Barley—50c a 53c.

Flour.—Superfine, No. 1, $5 20 a $5 30; fancy (Spring wheat) $5 45 a $5 55; fancy (Fall wheat) $5 60 a $5 75; extra, $6 a $6 25; double extra, $6 30 a $7.

Oatmeal—$4 25 a $4 50 per bbl.

Cornmeal—$2 50 a $3 per bbl.

Bran—$12 per ton.

Hay—$9 a $16 per ton.

Straw—$5 a $7 per ton.

Wool—28c per lb.

Potatoes.—New, $1 37 per bushel; old, 18c a 25c per bushel.

Butter—11c a 13c per lb.

Eggs—12c a 13c per doz.

Cheese—$10 a $11 per 100 lbs.

Beef.—First class cattle, $6 per 100; 2nd do $5 a $5 25.

Sheep—$3 50 a $4 00 each.

Lambs—$1 75 a $2 each.

Calves—$4 a $6.

Pork.—Little offered—$6 per 100.

Hides—$5 50 per 100; Tallow, $7 50 per 100; Calf Skins, 10c per lb.; Lamb and Sheep-skins, 30c each.

BRITISH MARKETS.

(*Per Steamer Anglo Saxon.*)

Liverpool, June 20, 1860.

Flour dull but steady. Wheat dull, prices easier—red 10s 8d to 11s; white 11s to 12s 9d. Corn very dull; sales of mixed 30s; yellow 32s 6d; white 34s to 35s. Pork quiet. Lard firm at 57s to 57s 6d. Sugar quiet. Coffee dull. Ashes dull, pots 29s.

Cleanliness.—Compare the dirtiness of the water in which you have washed when it is cold without soap, cold with soap, hot with soap. You will find the first has hardly removed any dirt at all, the second a little more, and the third a great deal more. But hold your hand over a cup of hot water for a minute or two, and then, by merely rubbing with the finger, you will bring off flakes of dirt or dirty skin. After a vapor bath you may peel your whole self clean in this way. What I mean is, that by simply washing or sponging with water you do not really clean your skin. Take a rough towel, dip one corner in very hot water,—if a little spirit be added to it, it will be more effectual,—and then rub as if you were rubbing the towel into your skin with your fingers. The black flakes which will come off will convince you that you were not clean before, however much soap and water you may have used. These flakes are what require moving. And you really keep yourself cleaner with a tumblerful of hot water and a rough towel and rubbing, than with a whole apparatus of bath, and soap, and sponge, without rubbing. It is quite nonsense to say that anybody need be dirty. Patients have been kept as clean by these means on a long voyage, and when a basinful of water could not be afforded, and when they could not be moved out of their berths, as if all the appurtenances of home had been at hand. Washing, however, with a large quantity of water, has quite other effects than those of mere cleanliness. The skin absorbs the water, and becomes softer and more perspirable. To wash with soap and soft water is, therefore, desirable from other points of view than that of cleanliness.—*Ibid.*

Ayrshire Cattle.—Patrick R. Wright, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale are liberal.

Full Pedigree of all animals—U. C. Stock Register.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription priceof the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copywith every ten orderes and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, JULY 16, 1860. No. 14.

Harvest Operations.

Before this article will be in the hands of our readers the cutting of wheat, and probably in some cases early peas and barley, will have commenced over considerable areas of the country. Indeed we have already seen a sample of wheat cut in the neighbourhood of Toronto on the 11th inst., which was perfectly ripe and dry, and fit for the miller; and further to the west the season is several days in advance of this point. A good deal has been said and written on the question of the proper time for cutting wheat or other grain; some writers recommending two weeks, three weeks or a month before the grain is fully ripe, for the operation. These very early dates might answer for a moist climate, of comparatively low temperature, like that of the British Islands, where grain matures slowly. But in this country the ripening process is so rapid that, in ordinary seasons, the time open for deliberation on the subject is very limited. On an average of seasons the length of time which elapses from the shooting of fall wheat into the ear till it becomes fully ripe and dry, so that there could be no difference of opinion on the question, is about five, or at most six weeks. When the kernel is just about leaving the milky state and acquiring the consistency of tough dough, so that when crushed between the finger and thumb it has a greasy, mealy feeling, the crop may be cut safely. It will not lose from shrinkage cut at that period; the bran will be thinner, the flour whiter, and the straw more valuable for fodder, and there will be less waste in gathering, than if left standing much longer. In about a week or ten days after the grain is in the state described, or if the weather is very hot, even in less time, the crop will be perfectly ripe and dry, when to leave it standing any longer would entail certain loss and increased difficulty in harvesting. The same remarks will apply, in their general principles, to the other sorts of grain.

Where fields are tolerably smooth and free from obstructions, and particularly where the breadth of crop is large, harvesting operations are very much facilitated and economized by the use of the improved reaping machines, with the addition of the raking or binding apparatus, and there is probably less waste with a good machine, than with any sort of hand labor. But where the work has to be performed by hand there is a surprising degree of difference, in regard to the preventing of waste, between the work of good hands, with proper tools, and the grain not too ripe, and work done under the contrary circumstances. Where slovenly hands and indifferent tools are employed, and the grain has been allowed to become too ripe, the waste is often much more than would have paid for the work being done in the best manner, and at the best time. The sheaf should be neatly raked together, not too large, well bound, and the scatterings on the ground where it has been tied raked on into the next sheaf. Before night, or sooner if there is an appearance of rain, all that is cut should be placed in the shock, or

stook. When grain is cut tolerably early, so that it will have to stand in the shock a week or thereabouts to become dry enough for the barn, there is an advantage in putting on cap sheaves. They preserve the color of the grain and straw, and in case of rain afford a considerable protection to the crop. In case of a soaking rain of long continuance, the caps require to be removed, to allow the free operation of the drying influences of the sun and air. In this climate we are comparatively exempt from the many risks and inconveniences on account of bad or uncertain weather which attend harvesting operations in moist northern latitudes. Still, we occasionally have a sufficiently troublesome time of it in harvest, and when a field is thoroughly dry and ready for the barn, it is always a safe plan to draw it in without delay, rather than to wait till the whole crop has been cut, or some other particular operation concluded, before commencing to carry it.

Accounts from nearly all quarters concur in representing the prospects of harvest highly flattering. It is true that the hay crop is comparatively light, that fall wheat in some limited sections was badly winter-killed, and that the depredations of the midge have been very serious in some localities; but we believe we have good grounds for anticipating that the crops of all kinds will on the whole be the best we have obtained for several years. The season was peculiarly favorable for the putting in of spring crops, and although there has been in the greater part of the country a scarcity of rain, still the general character of the weather, and the state of the land as left by the winter frosts, has been favorable to growth. Where failures have occurred, it is important to inquire into the cause or causes. In regard to the winter killing of wheat, we have made some remarks in preceding numbers, and shall revert to it again. In regard to the fly, experience this year supports the opinion that early ripening kinds of winter wheat, sown early, and on land in such a condition as to prevent heaving out by the frost, the crop will escape comparatively uninjured. Spring wheat, on the other hand, must also be of early maturing varieties, but must be sown late. We have before us a specimen from the field of a gentleman, alluded to and sufficiently described by him in a communication in another column. The yield of this crop, if thrashed at all, will probably not be one-tenth what it would have been if it had escaped the fly. But had the same field been sown with the Fife variety about the 15th or 20th of May, we do not doubt that a return of twenty-five or thirty bushels per acre might have been obtained.

We regret to observe that the season in the British Islands has been extraordinarily unfavorable to the operations of the farmer. In early spring, cattle and sheep died by thousands from sheer starvation, owing to the backwardness of the pastures after the stock of winter food was exhausted. Since then, up to the latest accounts, there has been almost a continued succession of week after week of wet and untoward weather. The prospects of the growing crops were consequently very discouraging. Should the crops in Europe prove to be as inferior as has been lately feared, the ample return which we hope to obtain on this side the Atlantic will be particularly fortunate both for them and for us, and the remunerative prices which our farmers may expect to realize for their produce, in connection with a bountiful harvest, will contribute to place the country once more in a sound financial position.

Parsnips, Carrots, Mangels, and Swedes, if not already hoed and singled out to their proper distances, should immediately undergo that operation, after which the skeleton, or cutting plough, should be passed along the drills as close to the plants as possible without injury to them, soon after which pass the drill harrow or scuffler to pulverise the soil between; or this operation may be performed previous to hand hoeing or singling out. Swedes may be singled out at from 12 to 15 inches apart, mangels from 15 to 18 inches, and parsnips and carrots 8 to 9 inches apart. Blanks in mangels and swedes may be filled up by carefully taking up the plants in moist weather, preserving their tap roots, and dipping them previous to transplanting in a bucket of rich mould, mixed up with soft or manure water to a semi-fluid consistence, taking care in the transplanting that the roots are not doubled up, and that the soil is closely, but gently, pressed to the roots, to keep out the drought, and that the heart of the plant is not buried.

Varieties of the White turnip may still be sown on land properly prepared for them and produce a valuable supply of early winter food for sheep and cattle. Refer to the hints in our last number for details on this subject.

Growing Wheat continuously on the same Land without Manure.

The English Agricultural Journals have for the last few months been much occupied with the discussion of a system of cultivation practised by the Rev. Mr. Samuel Smith, of Lois Weedon, Northamptonshire, England. Mr. Smith's system is in effect a revival, with some modifications, of that propounded by Jethro Tull, a hundred and thirty years ago. Tull's theory was that by sowing grain in drills, and frequently stirring and loosening the soil by the use of the hoe and other implements, the perpetual fertility of the land could be maintained without the use of manure. His main principle was that tillage will supply the place of manure, and that a good crop of wheat, for any number of years, may be grown, every year, upon the same land, without any manure, from first to last. Mr. Smith, of Lois Weedon, has been practising this theory, upon his own system, for the last twelve years, and has obtained an average of thirty-six bushels per acre from the same piece of land every year during that time, the last crop being in 1859. The latest crops have shown no symptoms of deterioration over those preceding. Mr. Smith's plan is as follows:— He plants three rows of wheat at ten inches apart, the three thus, allowing five inches on each side, occupying a space of thirty inches. The next two feet and a half are left vacant, then the next planted in the same way as the first, and so on in alternate strips throughout the field. The vacant strips are thoroughly and deeply cultivated during the winter and summer, by means of the spade or fork, the horse hoe, and other fallowing operations, and the spaces between the drills are also hoed at the proper periods. After harvest the vacant strips are sown, and the stubble strips become fallow, to be subjected to the same course of treatment as the others the preceding year.

In some respects this system is analogous to that in which the simple alternation is practised of wheat one year and bare fallow the next, wheat the next, and so on in perpetuity. Some of the opponents of Mr. Smith's system advance this view of the case, and state that it is a fallacy for him to speak of growing a crop from the same land every year, for that it is in reality only every other year. If this be granted however, the chief advantage they gain is, that they must allow Mr. Smith by his system to have succeeded in obtaining 36 bushels from the same half acre every alternate year, instead of 36 bushels from the same acre every year. But, in effect, there are numerous obvious differences of detail between the modes of tillage adopted and their influence on the crop, in the 30 inch strip system, and the alternate wheat crop and bare fallow field system.

We do not allude to this experiment for the sake of advising any of our readers to adopt a similar system upon their farms, but as an interesting illustration of what results may be produced by thorough and deep cultivation. Mr. Smith's wheat field is but small, only some five acres, and consequently admits of a system of perfect hand culture, which would be quite impracticable on a large farm, especially in a new country like Canada. The soil of Lois Weedon is likewise of prime quality, consisting of a good strong wheat land, resting on sound clay, and naturally dry.

Should any Canadian farmer, allured by the successful results of Mr. Smith's experiments, fancy that he could grow wheat every year on the same field without manuring, and attempt to put his theory into practice on a large scale, in the slovenly way in which it would be pretty sure to be done in this country, we apprehend that it would require but a very few years to convince him that his experiment was a grievous failure. Those however, who have the leisure, and the means and opportunity, to conduct such experiments on a small scale, and with adequate skill and care, may learn many interesting and valuable truths from them, and confer a large benefit upon the country by making the results of their experiments known to the public.

The Cattle Disease in New York State Six Years Ago.

It appears that Pleuro-Pneumonia is not altogether a new disease on this side of the Atlantic. There are several well authenticated cases of it having occurred some years ago, and having been extirpated by careful measures. Mr. E. P. Prentice, a well known breeder, of Mount Hope, near Albany, has written a letter to the *Country Gentleman*, stating that one of his cows became affected with the disease in the autumn of 1853. She had been sent to Brooklyn dur-

ing the summer to be used for her milk, and shortly after returning, in November, showed symptoms of distemper, and died in about eight days afterwards. Mr. Prentice did not know in what precise way the cow had taken the disease. In two or three weeks after her death, first one and then another of the cattle which had been in the stable with her were attacked. Mr. Prentice then began to discover that the disease was higly contagious. He commenced a system of isolation by removing all the healthy cattle from the vicinity of those that were affected, and having not more than two together in any one place. Notwithstanding the most skilful and careful treatment of the affected animals, 14 out of 16 of them died; but those that were isolated in a healthy state were saved, and the disease was subdued. Mr. Prentice did not suffer any of his healthy cattle to return to the yards or stables till late the following autumn, and in the meantime all the buildings were thoroughly cleansed and purified. He became satisfied that the only means of safety where the disease has been introduced, consists in complete isolation. Should it unfortunately make its appearance in Canada, this will be the first and most important means of safety to be taken.—Every diseased animal should be completely and absolutely isolated from all possible approach to healthy animals, and every farmer who owns cattle in a healthy state should take equal care that they do not come in contact with diseased animals.

The Turkish Bath a Cure for the Lung Disease in Cattle.

We observe by a recent number of the *Irish Farmers' Gazette*, of Dublin, that Dr. Barnett, a veterinary surgeon we believe, has discovered a cure for the lung disease in cattle which has been successful in every case in which it has been tried. He constructs a Turkish bath, into which the animals are put, and the usual soaping, rubbing, sweating and various manipulations are adopted to produce a profuse perspiration, after which they are covered with warm blankets and allowed to cool gradually. This treatment has been successful in many cases and had not yet failed in any. The cost of constructing the bath, he states, need not be more than £6 sterling, a mere trifle when compared with the results stated to be obtained. The water is heated to 110 to 115 degrees. If this simple process effect a cure, the knowledge of it should be widely distributed. We trust that some one in Massachusetts, where Pleuro Pneumonia has committed such havoc amongst their herds of cattle, will give the system a trial. We are indebted for information on this subject to the kindness of Mr. Hutton, Secretary of the Bureau of Agriculture, Quebec. We do not understand clearly from the reports on the subject, whether the lung disease, or cattle distemper, alluded to, is precisely the same as the Pleuro-Pneumonia which has been so destructive in Massachusetts lately, as the latter term is not used. But it is evidently, from the description, if not the same, at least very similar in its character, and we therefore presume that similar treatment would be successful in either case. The distemper prevailing in Ireland is described as very frequently fatal, the number of deaths under ordinary treatment being at the rate of one in every three or four of the cattle attacked, while under the bath treatment the proportion of deaths to recoveries appeared to be not more than one in ten. The *Gazette* gives the following sketch of proceedings on the subject, at a meeting of the Royal Agricultural Society of Ireland, on May 31st last:—

"Captain Ball previous to the last council meeting had addressed a letter to the Secretary asking the council to appoint two or three members as a sub-committee to go to the place where information could be obtained on the subject, and report thereon to the council. He was informed that a Turkish bath had been used by Dr. Barter in January and February last in the case of eight milch cows that had been seized with distemper; the first of the lot was neglected for a short time, and the animal died; but the seven other cows were treated in the bath from three to seven days, and recovered, and it was stated that uniformly milch cows taken and treated in that way were on the ninth or tenth day in as good a state of efficiency for the dairy as they had been previously. If that gentleman could show them how they could get the better of the distemper, and how the farmer, at the expense of a few pounds, could invest his capital in safety in horned stock, the society ought to take the matter in hand. Any person who had not seen, lived, and mixed among the people of dairy districts—and he could not believe it till he went to reside in the south—could scarcely estimate the importance of anything that would tend to make the dairymen of the south of Ireland feel to any extent at ease with regard to the distemper. It was the great bugbear that stood in the way of investing capi-

tal in dairy stock; even the enormous price of butter last year had failed to make men invest in dairy property; and why? Because they or their friends a few years back had been nearly ruined by the distemper. It was stated to him that within a very few miles of the same place there was a frieze-coated farmer—he did not know his name, but that did not matter for the purpose—who had up to last November a dairy of thirty cows; he lost every cow he had; he was set on "his legs" again, and two of his cows fell sick; Dr. Barter went over to him and showed him how for the sum of £6 he could put up a rude Turkish bath, and in that bath he treated the remainder of his stock, and since then he has not lost a single cow, although they had been all attacked with distemper; and it was stated that the result in every case with regard to milch cows was the same—that after such treatment they were again in milk in the couse of ten days. That statement, he thought, was worthy of consideration. A committee was appointed to go to Blarney and other places to collect evidence, and make a short report to the council, with a view to enabling parties interested to bring the matter forward in the show yard at Cork, where Dr. Barter would himself put up a booth and show the working of the system.

The Massachusetts Cattle Disease.

We copy the following letter, urging the importance of adopting immediate measures to prevent the introduction of the cattle disease into this country, from the Montreal *Herald* of June 27th. The farmers of Canada, as well as the ruling powers, provincial and municipal, cannot be too soon or too fully advised of the devastating character of the disease, so that when occasion requires there shall be no time lost in taking the requisite precautionary measures. We learn that the attention of government has been directed to the subject, and that the Bureau of Agriculture, and the Boards of Upper and Lower Canada, have been called upon to report it. We request the attention of our readers to the following letter and the other articles which have appeared in the *Agriculturist* on the subject:—

Mr. Editor,—Our land is threatened with a danger—save the loss of human life—more terrible than war, more disastrous than famine—a calamity the relief of which the resources of the Legislatuce will be inadequate to reach; a scourge which will depopulate the rural districts, and in its reaction will impoverish many of our merchants and land owners. Even now the danger is at our doors, and a single week may render it almost impossible. I refer to the cattle disease now raging in many parts of the States. So great is this calamity that an extra session of the Massachusetts Legislature was considered necessary to devise means to arrest its progress. Assemblies of Agriculturists have frequently met to endeavour to remedy the evil, and the counsels of the most eminent men have been evoked to consider the nature of the disease and its treatment. In Europe where this disease has prevailed for many years, the most despotic measures were adopted to prevent the spread of the contagion. Notwithstanding which, hundreds of thousands of cattle have perished, spreading ruin and dismay through whole districts. This disease was introduced to this continent by the importation of one animal from Europe to Massachusetts, from which State it is rapidly extending to others. It is found to be highly contagious, being communicated not only by contact with the diseased animal, but by any portion of animal matter: the hide, horn, offal, or even the very rope with which the diseased animal is tied, seems capable of conveying the contagion. The stable in which the animal is confined or the car or boat in which he is conveyed, seems capable of communicating the disease to healthy animals, which may follow confined in the same space.

Such being its contagious nature, I ask is there no danger of its introduction into Canada? Apart from the liability to its introduction across our borders, let a car load of market cattle be exposed to the contagion and nothing could prevent its spread through the country.—Animals conveyed by rail during the hot season suffer exceedingly, they are bruised and injured, deprived of rest, often without food and water, and are in the worst possible condition to be exposed to disease. Now is the time to prevent this calamity from reaching us. Let a "cordon sanitaire," be at once established along our borders. Let no cattle be brought from the infected districts. Let no cattle train pass the line without being thoroughly purified with disinfectants. Let full information be given in regard to the disease, the danger to which we are exposed, and the best treatment of the disease. Let the officers of every Agricultural Society be a Committee of Vigilance, and exercise the greatest caution to prevent the introduction of animals from abroad. Let there be no exhibition of animals until every trace of the disease has left the country.—More attention should be given to the subject in Lower Canada because we are nearer to the infected districts, and because the communication with the States is easy, while in Upper Canada the rivers and the lakes form the boundary, and the introduction of animals may easily be prevented. Whatever is to be done should be done at once, before it is too late. To show the danger to which the country is exposed, and the widespread ruin which follows the introduction of

this disease, I would call attention to the subjoined remarks of a Missionary of the A.B.C.F. M., from the Cape Colony, in an address on the subject recetly at Hartford, Con. Let us take warning by the ruin of a portion of Cape Colony and adopt measures to prevent a similar calamity in this Province. The subject should command the attention of the Minister of Agriculture, and there is no doubt the country would fully justify any measures he might adopt to save us from the imminent danger which now threatens us.

L.

Montreal, June, 26, 1960.

[The remarks of Mr. Lindley, the Missionary alluded to, have already appeared in the *Agriculturist.*]

Correspondence.

Thorough Drainage and the Wheat Midge.

Editor Agriculturist.—I regret being obliged to express my disappointment in failing to realize the full effect which I had expected to result from underdraining of land. My theory was that proper cultivation would be a defence against the midge, and that land well tilled, drained, and manured, would grow a plant which would flourish and perfect its seed in spite of this insect at any season. As I think I have thoroughly tested this theory and found it incorrect, it will doubtless be proper to show at once wherein it has failed. One field consisting of eight acres was thoroughly drained in the spring of 1859, and was under roots during the seasons of 1858 and '59, but without manure. The crop of 1859 was something over 400 bushels of mangolds and carrots per acre, the cost of which, independently of drainage and rent, was $5.25 per 100 bushels. This year, 1860, the field was dressed with 10 tons of rich farm yard manure per acre, and the seed sown 11th April. From that day to this the growth of the crop has been unchecked, notwithstanding the great drought in this neighbourhood during May and the commencement of June. The ears began to head out strongly about the 17th June, at which time unfortunately the fly was in its height. The consequence is that the crop is literally devoured. The average number of worms in each head is abont 300. It is difficult to find a perfect grain and many single grains contain as many as 25 worms, and it is impossible to find a head free from them in the whole field. This is the dark side of the picture. On the other hand, my fall wheat is in excellent order, and though affected to a slight degree, is not seriously injured, the grain which came out in head about the 3rd June promising to be plentiful and plump.

These facts show that the only escape from this destructive insect is by the wheat coming into ear and getting well forward before the midge makes its appearance, or coming out after the irruption of this *mity* army and the expenditure of its destructive powers in another direction. In the eastern part of this district late sowing, that is, not earlier than the 12th May has been already adopted to ensure this latter result. But is it not questionable whether in our climate late sowing can be relied upon to produce a crop at all? Cannot our farmers be induced to come forward and from year to year fill your editorial drawer with correct returns of the circumstances of the growth of their crops. The time of sowing, the quantity of seed, the *measurement* of the land and the actual weight of the crop, and the general treatment of their soil. A few returns of this kind would be invaluable, as by comparing the results we might gain information in a single season which could not be attained by individual efforts in years.

However underdraining may have failed to repulse the enemy at his own chosen time of attack, there can be no doubt of its efficiency in bringing about the early ripening of winter wheat, and a proper condition of soil to receive a late sowing of spring wheat. The former grain it will protect from all the different chances of winter-killing and ensure for it an early and vigorous spring growth, and for the latter it will afford a moist and friable seed bed, differing most essentially from the hard baked condition of soil which ordinarily exists in our advanced spring-time. Hoping that the interest of the subject may be my excuse if I have trespassed too much on your space, I remain, &c.,

Humberford.

July 13, 1860.

Canadian Vineyards.

Editor of the Agriculturist.—I have read with a good deal of interest the several communications upon the subject of Grape-growing, contained in your last number, and I venture to pen a few observations, with the hope of doing some good. I shall make them as brief as possible.

1. The beneficial results of producing wine extensively can scarcely be over-rated. Morally they would be very great. *Drinking of Wine does not appear to create that morbid condition of the stomach which strong liquors, impregnated with strychnine, &c. &c., do, and hence inveterate intoxication is rare in wine drinking countries.*

2. We are certainly able to produce a good wine in Canada. It has been, and is still done. In the Eastern States it is also done. Thousands of gallons are made in Connecticut yearly, from the wild grape. In the year 1850, over 200,000 gallons were made. Some of these wines have been pronounced equal to the best Rhenish, and

superior to the French. In Massachussetts, one firm (and there are several) purchased upwards of seventy-five tons of wild grapes, at sixty dollars the ton, and manufactured more than twenty thousand gallons of wine.

3. To rely upon any foreign grape, is to trust to a broken reed. Your correspondents do not appear to be aware of the real difficulty of growing it in this climate. The difficulty is not with the season; this is long enough to ripen many kinds, as the Palmerston, White Cluster, Macready, Early White, White and Dutch Sweetwater, Royal Muscadine, and Black Cluster. Nor is the winter cold the difficulty, for they could be easily protected from it. But the *mildew*, the *mildew*, that is the trouble; that is it which renders a crop from the foreign vine out of doors, so rare and so uncertain. It has been tried again and again, and failed,—tried on this continent by Yankee, English, French and German, and discarded. Mr. Longworth, the originator of the extensive vineyards of Ohio, says:—"I have for thirty years experimented on the foreign grape, both for the table and for wine. In the acclimation of plants I do not believe, for the white sweetwater does not succeed as well with me as it did 30 years since. I obtained a large variety of French grapes. They were from the vicinity of Paris and Bordeaux. From Madeira I obtained 6,000 vines of their best wine grapes. Not one was found worthy of cultivation. As a last experiment, I imported 7,000 vines from the mountains of Jura, in the vicinity of Salins in France. At that point the wine region suddenly ends, and many vines are there cultivated on the north side of the mountain, where the ground is covered with snow the whole winter, from three to four feet deep. After a trial of five years all were thrown away. *If we intend cultivating the grape for wine, we must rely on the native grapes, and new varieties raised from their seed.*" Again, he says:—"After importing foreign grapes for 30 years, from all latitudes, I have never found one worthy of cultivation in the open air." The great mass of those who are familiar with grape-growing in this country, would smile with pity at any attempt to grow foreign grape on a large scale for wine. Nor do we need it. We have native grapes of superior quality, both for the table and for wine. We have now over 70 varieties of hardy natives. Among these are the Delaware, the Diana, the Concord, the Logan, the Key, and the Canada Wine, an enormous grower and bearer,—5 barrels of wine are said to have been made from the fruit of one vine in one season. Had I the land and the means I would commence with these on a small scale. Indeed, it is only on a small scale that any one could begin with them, for they are as yet scarce, and consequently very valuable. The Clinton I do not think much of. It is a small, sour grape, sour at least until frost cometh; whereas those mentioned above are mostly large, fine grapes. The Delaware is indeed small, but it is very sweet, high flavoured, and delicious. The Diana and Concord are fine.

4. It is a mistake to suppose a very sandy soil is the most suitable. The Ohio Vintners have not found it so, and do not think so. In a sandy soil the vine is apt to be unusually infested with insects. A good wheat soil, well and thoroughly drained, is what they prefer; and such soil, if hilly, would be most desirable, and can be found in most parts of Canada. However it is well known that the grape will grow almost anywhere, and well enough upon the roughest and rockiest slopes we have. There are surely thousands of acres in Western Canada, now only pastured, because of the steepiness or rockiness, which would do admirably for the grape. If the possessors of those fine hills, so common in the rear part of Peel, could be induced to make a beginning, and make themselves familiar with the processess of vine cultivation, it would be a grand beginning. Nor is the labor, after planting, great, no greater indeed than that required by a field of corn. Yet the yield is very large. The average is 200 to 300 gallons to the acre. In some cases it is far greater. Two acres belonging to a Mr. Rentz, yielded in one year 1,300. But particular spots have often given from 1,400 to 1,500 gallons to the acre. But at 200 gallons to the acre, which in Ohio is considered an average for a series of years, what crop have we that can at all compare with it? Is not the bare prospect enough to induce the trial, with or without government help. Surely the planting of even a quarter of an acre (and since at present good vines can only be obtained by dozens) some might venture upon. They need be at no loss for instruction, for there are several excellent manuals which afford all the information needed.

It is well known that the Catawba is the great wine grape of the south; for, strange to say, the Isabella, which does so well at the north, does not suit Ohio, or rather Ohio does not suit it. But the Diana is a seedling of the Catawba, and many affirm that it is destined to be as good a wine grape for New York as the latter for Ohio. The Concord has been found to yield a larger supply of juice than the Isabella, and is said to make a prime wine with a rich boquet. It is perfectly hardy and not liable to mildew. As to the Clinton, I may be prejudiced, but with me it was severely injured by frost one season, and the fruit completely destroyed by mildew in another. Yet it is said to make a splendid fruity wine. There is another variety or seedling of it, called the Golden Clinton, a very excellent grape. The Clinton and the Isabella are the only kinds that can as yet be obtained by the thousand. The price of these is about 50 or 60 dollars per thousand. The report of the St. Louis Agricultural and Mechanical Association for 1858, states, that in the vineyards of Boonville, Mo., 5 acres gave a clear profit of $400 per acre. The vintage of Herman was about 100,000 gallons, from less than 200 acres: at

$1. per gallon, which is less than the value, it will give a profit of at least $400 per acre. $100 per acre, per annum, is sufficient to pay the interest on the first cost, and the expense of cultivation. The vindresser, even in the poorest season, can scarcely fail of a handsome profit, while in good years his gains will far surpass those derived from any other department of industry. Will not the owners of the small vineyards in Western Canada, oblige us with their experience? There are, I understand, several such vineyards. C—s.

July, 1860.

For what are Prizes awarded?

Editor Agriculturist.—What are the principles on which judges award prizes on what are designated other kinds of potatoes? Do they give the prize to the potato that has the whitest and finest grain? If so, does not this often happen to be a poor yielder, and perhaps very liable to rot? Is it not often the fact that a potato that gets no prize is (all things being considered) far the best potato for the farmer to raise and thence best for the Province? I will name a few of these profitable kinds, and among these I would name first a large potato, white both outside and inside, and a great yielder. I know a party who planted a bushel and a half a year ago last spring, and last fall when he dug them he had twenty-nine bushels, and they are just as fine a table potato as the pinkeye. Such a potato pays better than either the pinkeye or meshanac; as the same parties raised all these varieties, he had a good opportunity of judging. Then there is the white flesh merino, great for crop and good for keeping late in the summer, also a fine flavored potato. Then the red potato is very productive, it suffered little from the rot when others were most destroyed. These are two qualities much to be desired; the red is however by no means so fine a table potato as many others. The same remarks are applicable to the English white and other varieties.

My enquiry applies also to grain; for what is said of potatoes may be said of wheat, both fall and spring wheat. We have a variety of each class. Now does the largest and heaviest berry get the prize? This may or may not be the best wheat for the country, for instance the blue-stem I suppose is the heaviest among the fall wheat. But should that take the prize over all other kinds? We have several kinds of early wheat introduced among us in order to escape the rust and the midge, and should they succeed in this respect they will of course be the kind for the Canadian farmer; but if they have to compete with the blue stem at our agricultural shows, they can have no prize, as they are of a darker color than that of the blue stem. The Fife wheat among the varieties of spring wheat perhaps is as good a kind as any, and yet in its color and general appearance it is inferior to other kinds, and consequently may receive no prize; is this a fact or are there prizes given on all varieties? And are there prizes given on all the varieties of oats? We all hope to see a large show of every variety of grain, seeds, and roots, and all kinds of handy work, and in order to this it is to be hoped that our honorable Board of Directors, of our Provincial Agricultural Association, will do all in their power to secure this. S. King.

Ryckman's Corners, 1860.

[In reply to the general question of our correspondent we may state that we believe the judges at the Provincial Exhibition are left very much to their own discretion as to the principles which shall guide their decisions in cases like those supposed. The object is that they shall award the prize to that specimen or variety of any product which, from all the information they possess, or all the means of comparison available, they believe to be the most useful and valuable, from possessing the largest number of the most valuable and important properties. It would be next to impossible to offer separate prizes for every variety of every product. The prizes would be so numerous that they would have to be almost infinitesimal in amount; besides, it is quite as important, perhaps in some cases more important, to ascertain which is the best variety of any particular kind of grain or other product, than to decide which is the best specimen of a variety exhibited. In the case of wheat or other grain, weight should not, of course, alone decide the superiority of a sample, but in case of several samples being of equal merit in all other respects, we think that the heaviest sample should receive the preference. —Eds.]

Robertson's Combined Drill, Plow, Horse Hoe, Cultivator, and Potato Digger.

This is, without exception, the completest implement of the kind I have ever seen. It is designed for one horse, and is an excellent machine for drilling for seeds. It is complete for cultivating among corn and potatoes, and for hilling up of either; and by putting two horses to it, driving one in each drill, you may plough your potatoes out, throwing one half of them each way. I presume the manufacturer will exhibit some of these machines at the approaching Provincial Show, when your readers may have an opportunity of seeing them. The implement is of English origin, and is regarded there now as the best in use. I borrowed one from a neighbour, and am so well pleased with it that I have made up my mind to purchase one of

them for myself, and as we have just been hindered by a shower of rain for a little, I sat down to tell others of your readers about this machine. S. KING.

Ryckman's Corners, 1860.

Breachy Horses.

EDITORS OF THE AGRICULTURIST.—Thinking something like the following might be of some benefit to those who are unfortunate enough to have breachy horses, (and I should suppose from the great number of horses carrying heavy timbers that the remedy cannot be generally known) should you think it worth a place in the *Agriculturist* it is at your service. Put a head stall (halter) on the horse, then take a piece of sheep skin, say ten inches wide and twelve inches in length, sew it to the brow piece of the halter, with the wool out; this will stand out from the eyes far enough to allow the animal to walk about comfortably and feed, but not to inspect fences. One of my neighbours purchased a beast last winter, and on turning her to pasture this summer, he found that no fence would stop her, until he tried the plan described, and he has had no trouble since. This is the second case to my knowledge when all other means failed. J. R.

Barton, July, 1860.

Agricultural Intelligence.

The Wheat Fly Parasite.

A correspondent of the London *Free Press* communicates the following piece of intelligence which, if true, is very important. It has been supposed that the parasite, which is the most effectual destroyer of the midge, or wheat fly, did not exist in this country:

"I am rejoiced that this week I announce the arrival of a deadly enemy to the wheat maggot or fly; in the neighborhood of Sparta Township of Yarmouth, the farmers discovered another species of ichneumons, which deposit their eggs in the larvæ. One of these is very small—black and shining; the other is also black, with red feet and a blunt tail. These are often mistaken for the wheat fly; but as it has only *two* wings, while they have *four*, the distinction is obvious. To observe the proceedings of the ichneumons, place a number of the larvæ of the wheat fly on a sheet of paper, and set a female ichneumon in the midst of them—she soon pounces upon her victim, and intensely vibrating her autennæ, bending herself obliquely, plunges her ovipositor into the body of the larvæ, depositing in it a single egg. She will then pass to a second, and so on, depositing a single egg in each. You will observe the maggot writhing in seeming agony, when sometimes the fly stings them three times.

These ichneumons appear in myriads on the outside of the ear; but, as impatient of bright light, sheltering them from the sun's rays among the husks.

Horticultural.

The Second Exhibition, for the season, of the Toronto Horticultural Society was held on the 10th inst., in St. Lawrence Hall, and was altogether a very successful affair. We wish that some of our farmers who neglect the garden, and scarcely know what it is to enjoy a decent vegetable till late potatos and cabbages come in in autumn, or at any rate till the season is far advanced, could have seen the profuse display of splendidly grown celery, cucumbers, beans, carrots, beets, onions, potatos, cauliflowers, and many other products at this show. They would have learnt that they only require to make the attempt, of course with the necessary degree of skill, which is not difficult to acquire, to obtain similar results; and they would find the addition to the domestic comfort and health of themselves and families an ample reward for the labor expended. The show of fruit, consisting of large, ripe, and rich cherries, of the Black Heart, Bigarreau, Early White Heart and other varieties, grapes, strawberries, raspberries, currants, gooseberries, &c., was exceedingly fine. The two or three bad fruit years which have occurred lately had almost led some persons to fancy that fruit could not be grown successfully any longer in this country; but the present season, and the evidence of such specimens as were exhibited the other day will reassure them. We are satisfied that the last few seasons were entirely of an exceptional character, and that with the exercise of the requisite industry and skill, joined with a careful study of the requirements of the climate, there is no kind of fruit that could reasonably be expected to be produced, which may not be cultivated successfully. The show of plants and flowers at this exhibition, particularly of green-house plants and bouquets, was also very attractive, but presented no feature calling for special remark at present.

Our practical hints for the remainder of this month and beginning of August must be rather brief.

THE FLOWER GARDEN.—Keep down weeds. Take up tulips, crocuses, hyacinths, and lay them by in a cool place to dry till time for setting out in autumn. Cut down herbaceous

plants that have done flowering. Stake and tie up dahlias, hollyhocks and other tall plants coming into flower. Encourage the growth of lately planted annuals in the borders by watering and keeping the ground loose and well hoed. Peg down verbenas; this will give them a much finer effect than if they are left in a straggling state. Attend to laying carnations, in regard to which we gave some directions in our last.

The Kitchen Garden.—Keep the crops clear of weeds, and the ground well tilled. Where early potatos have been dug, the ground may be sown with early turnips or early peas. Radishes, lettuce, &c., may also be sown on ground prepared for them. Melons and cucumbers require some attention. They should be hoed and the superfluous shoots thinned out. The shoots left to grow should be pinched in, two joints before the fruit. This will secure a more vigorous growth, earlier ripening, and finer quality of the fruit. There have been many ways recommended for staking and supporting tomatos. The Philadelphia *Gardener's Monthly* says:—"The finest fruit, and indeed the heaviest crops, are obtained by allowing them to trail on the ground. The soil between the rows being first heavily mulched with short grass from the lawn mowings to keep the fruit clean. This method is coming into almost general practice in this neighborhood, through its tested excellence. Where they grow too rank, and the branches mat too closely, they should be thinned out. Nothing is gained by leaving many shoots grow together, either in this or any crop."

The Nursery.—We conclude our hints this time with the following directions for budding and grafting fruit trees in the nursery, which we borrow from P. Barry's "Fruit Garden." The directions are for the first year's operations:

"Strong yearling seedlings of the *apple*, *pear*, *cherry*, and *plum*, say one-fourth of an inch and upwards in diameter, and well rooted layers of the *quince*, *paradise*, and *Doucain*, of the same size, planted in the spring in a good soil, and kept under good clean culture will, as a general thing, be in a fit state for budding in July, August, or September following. The budding may therefore be considered as the first season's work. The details of this operation may be divided for consideration, as follows:

1st. The time for budding each species or class of fruits depends upon its habits of growth. Such as cease to grow early in the season, must be budded early, because it can only be done while the stocks are in a free, growing state, full of sap. Such as grow until late in the autumn, must be budded late, otherwise the new layers of wood formed after the insertion of the bud, would grow over and destroy it, or the bud would be forced into a premature growth towards autumn, which in fruit trees should always be avoided. The common sorts of plum terminate their growth early in the season, and are therefore budded early, whether with plums, peaches, or apricots, at Rochester usually about the last of July, or beginning of August. The native or *Canada* plum, and the *cherry* or *myrobalan*, grow freely till late in the fall, and may be budded in the latter end of August, or beginning of September. *Pears* on *pear stocks* are usually budded here in July, in anticipation of the leaf blight which stops their growth when it attacks them. Where no such thing as this is apprehended, they should not be budded before the middle of August, as the buds are not generally mature till that time. *Apples* on free stocks, and on the paradise and Doucain, may be budded as soon as the buds are mature, which is usually, here, about the first to the middle of August. *Cherries on free mazzard stocks*—as soon as buds are ripe, here about the first of August. *Pears on quince*, and *cherries on mahaleb*, not before the first of September, and from that to the middle of the month, as the quince and mahaleb grow late, and especially the latter. Peach stocks should always be budded the same season the seeds are planted, and, as they grow rapidly until very late, are not usually budded till about the middle of September. The budding period varies in different seasons. In a dry, warm season, the young wood matures earlier, and stocks cease to grow sooner, and are, therefore, budded earlier than in a cool, moist season, that prolongs the growth of the stocks, and retards the maturity of the buds. Stocks growing feebly require to be budded earlier than those growing freely. It is necessary to keep an eye to all these points.

The destruction of insects must be promptly attended to. An army of *slugs* may devour the foliage of the pear and cherry, and even the plum, in a day or two, and prevent their being worked that season. The *aphis*, too, frequently appears in such multitudes as to check the growth. Dry lime or ashes thrown on the slugs will kill them, and strong soap suds, or tobacco water, so strong as to assume the color of strong beer, will kill the aphis.

2d. *Preparation of the Stocks.*—This consists in removing such lateral shoots from the stock as may be likely to obstruct the insertion of the bud. Our practice is to do this at the moment of budding, one person doing the work in advance of the budders. If done a few days previous, and several shoots are removed, it checks the growth of the stocks, and they do not work so well. It might answer very well to do it two or three weeks previous, so that they might recover from the check before being budded.

3d. *Insertion of the Bud.*—Having treated so fully of the manner of preparing and inserting the buds in the article on budding, nothing farther need be said on these points here.

In free stocks the bud should be inserted within three or four inches of the ground.

In some parts of the west, Wisconsin, Illinois, and some other places, certain rapid, late-growing, and rather tender varieties are liable to be winter-killed if budded close to the ground, probably by the sudden thawing of that part caused by the refraction of heat from the ground. In view of such a difficulty, it may be well enough to bud high up, but, as a general thing, low budding makes the best trees. All dwarf stocks should be budded as close to the surface of the ground as it is possible, and even some of the earth may be removed and put back when the budding is done. The necessity for this lies in the fact that all dwarf stocks should be wholly below the ground when finally planted out in the garden or orchard.

4th. *Untying the Buds.*—In ten days or a fortnight after the buds are inserted, they should be examined, and such as have failed may be budded again if the stocks continue to grow. In some cases it may be necessary, and particularly with cherries, to loosen the buds and tie them over again, as rapid growth will cause the string to cut the bark before the bud has completely united, or is fit to be untied. This seldom occurs, however; as a general thing, the strings may be removed in three weeks to a month after the budding; and they should never be left on over the winter, as moisture lodges around them to the detriment of the bud. As soon as the budding is done, the ground should be worked over with the cultivator or forked spade. The first season's management of stocks too small for budding consists simply in keeping the soil clean and mellow, and in guarding against the attacks of insects."

J. F.

Domestic.

Directions for Preserving Fruits, &c.

From the Wisconsin Farmer.

The following recipes originally accompanied some thirty varieties of first-premium preserves and jellies exhibited by Mrs. H. W. Hayes, of Palmyra, who is particularly skilled in the preparation of all sorts of delicacies for the table. The specimens in question were as fine as any we ever saw, and commanded the admiration of all who inspected them.

To preserve Apples.—Pare, and core, and cut them in halves or quarters, (whole if preferred;) take as many pounds of the best white sugar; put a teacup of water to each pound; when it is dissolved, set it over the fire, and when boiling hot put in the fruit, and let it boil gently until it is clear and the syrup thick; take the fruit with a skimmer on to flat dishes, spread it to cool, then put it in pots or jars, and pour the jelly over. Lemons boiled tender in water and sliced thin may be boiled with the water.

Crab-Apple.—The same as apple.

Pear.—Take the pears and set them over the fire in a kettle with water to cover them; let them simmer until they will yield to the pressure of the finger; then with a skimmer take them into cold water; pare them; then make a syrup of a pound of sugar for each pound of sugar when it is boiling hot, pour it over the pears, and let it stand until the next day, when drain it off, make it boiling hot and again pour it over; after a day or two, put the fruit in the syrup, over the fire, and boil it gently until it is clear; then take it into the jars; boil the syrup thick, and pour it over the fruit.

Strawberry.—To two pounds of strawberries add two pounds of powdered sugar, and put them in a preserving kettle, over a slow fire till the sugar is melted; then boil them about twenty minutes, and put the fruit in jars boiling hot.

Currant.—Take ripe currants, free from stems; weigh them, and take the same weight of sugar, with sufficient water to dissolve the sugar, make a syrup and boil until clear; then turn it over the fruit; let it remain one night; hen set it over the fire and boil gently until hey are cooked and clear; then with a skimmer put the fruit into the jars; boil the syrup until rich and thick; then pour over the fruit in in the jars.

Peach.—Pear the peaches, weigh them, and take the same weight of sugar; boil the syrup until it is clear, then turn it over the fruit; let it remain for one night, then take out the fruit upon flat dishes; boil the syrup again, and pour it over the fruit *in the jars;* again pour off the syrup and boil it—this to be repeated for four successive days—the jars not to be closed until the whole is thoroughly cold.

Jellies.—The directions are nearly similar for all kinds of fruit. Express the juice from the fruit, weigh it, and add the same weight of sugar; boil it to the consistency of jelly, (the *time* varies for the different kinds of fruit;) then put it in glasses, let it remain until perfectly cold, when seal up.

Plum.—Directions the same, except that the fruit should be cooked up with the sugar; then skim out the fruit; strain and boil the remainder until it is jelly.

Apple.—Stew up the fruit, then strain the juice, add the same weight of sugar and boil until jelly; flavour with slices of fresh lemon.

Raspberry Jam.—Weigh the fruit and add three quarters of the weight of sugar; put the fruit into a preserving pan, boil, and break it; stir constantly and let it simmer half an hour.

Glen Cottage Cake.—Two cups sugar; one of butter; four of flour; one-half of sweet milk; one-half of cream; the whites of five eggs; one teaspoonful of soda; one of cream tartar. Excellent.

The Provincial Exhibition.—The Prize List of the Provincial Exhibition will be found in another part of this number. It will be seen that the number and amount of prizes are largely increased over those of any preceding year. The amount now offered in prizes is about $15,000, being $4,000 more than on any former occasion. This increase has been made with the view of obtaining as full and complete a display of the Agricultural productions and industry of Upper Canada as possible, in anticipation of the approaching visit of His Royal Highness the Prince of Wales, so as to afford His Royal Highness and his suite, should he honor the Exhibition with his presence, an opportunity of judging of the wealth and prosperity of this section of the Province. The exact days for holding the exhibition are not yet named, but will be announced as soon as possible. Exhibiters will have to prepare somewhat earlier than usual, and in order that there may be no difficulty in getting everything properly arranged, owing to preparations being too long delayed, exhibiters are required to forward their entries to the Secretary, at Toronto, in the latter part of August, or on 1st September.

Outlines of Chemico-Hygiene; or the application of Chemical results to the Preservation of Health, and cure of disease; by A. Dallas, C. H., C. M. Toronto: Maclear & Co. We are indebted to the politeness of the author for a copy of this neatly printed pamphlet of 120 pages. Chemico-Hygiene, we are told, is a system of preserving the health, and treating disease, exclusively by natural means, in opposition to the drugging system. The food, the clothing, the air, the bath, &c., are agencies that produce chemical changes in the body; which changes are specific and measurable in the same way that other chemical changes are definitely measured in the experiments of the laboratory. The chemico-hygienist professes to know what the changes are, to understand the principles on which they take place, to be able to trace them through their primary, medial and final stages, to have a perfect insight into the conditions on which healthy and diseased states of the body are dependent; and therefore to have it in his power to control the external causes by which those healthy and diseased states are produced. We can recommend the work to our readers as affording some very valuable and useful information on the important subject of the preservation of health, irrespective of the peculiar system of which it treats.

The Agriculturist.—The present number has been delayed a few days to give insertion to the Prize List of the Provincial Exhibition, the arrangement of which, owing to various causes, was not completed in time for the punctual appearance of the Journal. Some articles in type have been unavoidably crowded out to make room for the Prize List.

Market Intelligence.

TORONTO MARKETS.

Toronto, July 14, 1860.

There has not been much doing in the market during the past fortnight, farmers having been chiefly engaged in securing their crops. The results to be expected from the incoming harvest both on this side of the Atlantic and in Europe, are yet too little known to give a decided tone to prices. The following are the latest quotations:

Fall Wheat—$1 30 a $1 40 per bushel.
Spring Wheat—$1 10 a $1 17½ per bushel.
Peas—50c a 55c per bushel.
Oats—31c a 32c.
Barley—50c a 55c.

Flour—Little doing, and quotations nearly nominal. Superfine, No. 1, $5 10 a $5 30; fancy, $5 25 a $5 60; extra, $6 a $6 30; extra superfine, $6 55 a $6 75.

Hay—$10 a $17 per ton.
Straw—$5 a $6 per ton.
Potatos—New, 20c a 25 per bushel; old, 20c a 25c per bushel.
Butter—Fresh, 15c a 17c per lb.
Eggs—13c a 14c from farmer's wagons.

Cheese—$9 a $11 per 100 lbs for inferior to prime American.

Beef—First-class $5 to $5 50 per 100; 2nd $4 50 to $4 75; inferior $4.
Sheep—$3 50 to $4 each.
Lambs—$1 75 to $2 each.
Calves—$4 to $6 each.
Hides—$5½ per 100. Sheep and lambskins, 40c each. Calfskins 10c per lb. Tallow $7⅛ per 100.

Provisions—Hams, green, $9 to $9 50 per 100; smoked $10 to $11; shoulders, $7 to $7 50; bacon, for export to England, $8 75 per 100.

Wool—27c to 29c per lb.

Fruit—Apples, grown in the Southern States, $7 per brl. Cherries, $1 per bushel. Currants 8c to 10c per quart for black, and 4c for red. Huckleberries $3 per bushel.

REGULATIONS AND PRIZE LIST

OF THE

Fifteenth Exhibition of the Provincial Agricultural Association

OF UPPER CANADA,

To be held at Hamilton, on Tuesday, Wednesday, Thursday and Friday, the — September, 1860.

[The precise days of the month will be announced as soon as decided.]

RULES AND REGULATIONS.

"The Members of the Agricultural Societies of the several Townships within the County or Electoral Division or United Counties wherein the Annual Exhibition may be held, and the members of the said County or Electoral Division Society, shall be also members of the Association for that year, and have members' tickets accordingly; provided the Agricultural Societies of the said Townships, or the Societies of the said County or Electoral Division or United Counties, shall devote their whole funds for the year, including the Governmeut Grant, in aid of the Association. The Office-bearers of all County Societies shall have tickets of free entrance during the Show.—*By-law.*"

1. The payment of $1 and upwards constitutes a person a member of the Agricultural Association of Upper Canada for one year; and $10 for life, when given for that specific object, and not as a contribution to the local funds.

2. No one but a member will be allowed to compete for prizes except in classes 30, 40, 47 & 48.

3. All entries must be made on printed forms, which may be obtained of the Secretaries of Agricultural Societies, or of Mechanics' Institutes, free of charge. These forms are to be filled up and signed by the exhibiter, enclosing a dollar for membership, and sent to the Secretary of the Association, Board of Agriculture, Toronto, ON OR BEFORE SATURDAY, SEPTEMBER 1st, after which no entries can be taken except in the Horticultural and Ladies' Departments and Foreign classes.

Exhibiters in these Departments may enter articles up to Monday Evening, of the show week, when the Books will be finally closed.

4. *Blood Horses and Thorough-bred Cattle* must be entered, and have their full pedigrees properly attested and sent to the Secretary in Toronto, *not later than Saturday, August 25th.* No animals will be allowed to compete as pure bred, unless they possess regular Stud and Herd Book pedigrees, or satisfactory evidence be produced that they are directly descended from such stock. In the class of Durham Cattle, particularly, no animal will be entered for competition, unless the pedigree of the same be first inserted in the English or American Herd Book, or in the Upper Canada Stock Register, kept at the office of the Board of Agriculture.

In consequence of the danger of contagious disease, no black or horned cattle from foreign countries will be admitted to the exhibition. Cattle imported direct from Great Britain not considered foreign.

5. Tickets from the Treasurer's Office will be furnished each member, till Wednesday evening, which will admit himself only, free to every department of the exhibition, during the Show. Life members admitted free.

No members' tickets will be issued after Wednesday evening, but those issued up to that time will be good till the close of the show.

Necessary attendants upon stock and articles, belonging to exhibiters, will be furnished with admission tickets with their names written upon them, which tickets will be good at the *Exhibiters' Gate* only.

6. Tickets of admission to those who are not members, will be issued on and after Thursday morning, 25 cents each time of admission; the ticket to be given up at the gate. Children under 14 yearsof age, half-price. No carriages, or persons on horse-back will be admitted.

7. Every article, other than live stock, exhibited for competition, must be the growth, produce, or manufacture of Canada, except in classes 40 and 59. Live Stock, except in class 30 must be the *bona fide* property of persons residing in Canada, and must be exhibited in the name of the owner only.

☞ *All premiums for articles, except Stock, are to be awarded to the manufacturers or producers only.*

8. Articles for Exhibition must be on the grounds on Monday, except live stock, which must be there not later than Tuesday at noon.

9. Discretionary Premiums will be awarded for such articles as may be considered worthy by the Judges, although not enumerated in the List, and the Directors will determine the amount of premium.

In the Fine Arts and Mechanical Department, Diplomas will be awarded—in addition to the money prizes—to any specimen evidencing great skill in its production, or deemed otherwise worthy of such a distinction, on its being recommended by the Judges and approved of by the Committee to whom all such matters shall be referred.

In the absence of competition in any of the Classes, or if the Stock or articles exhibited be of inferior quality, the Judges will exercise their discretion as to the value of the premiums they recommend.

10. The Judges, Competitors, and Officers of the Association, only, will be permitted to enter the Show Grounds, until 12 o'clock on Tuesday, —, at which hour and during the whole of Wednesday, Members will be admitted. Non-Members will be admitted on *Thursday and Friday mornings* after 8 o'clock.

A GENERAL SUPERINTENDENT will be appointed, who will have the general supervision of the grounds, and of the arrangements of the Exhibition. He will have an office upon the ground; where all persons having inquiries to make in relation to the arrangements will apply.

11. No articles or stock exhibited will be allowed to be removed from the grounds, till the awards are made, without the permission of the President, under the penalty of losing the premiums. An Auctioneer will be on the ground

after the premiums are announced, and every facility afforded for the transaction of business.

12. Delegates, Judges and Members of the Press are requested and expected to report themselves at the Secretary's Office, immediately on their arrival.

13. The Judges are to meet at the Secretary's Office on the Grounds, on Tuesday, at noon, to make arrangements for entering upon their duties.

14. The Annual Meeting of the Directors of the Association, will take place on the grounds on Friday morning at 10 o'clock.

15. While the Directors will take every possible precaution, under the circumstances, to ensure the safety of articles sent to the exhibition, yet they wish it to be distinctly understood that the owners of the articles must themselves take the risk of exhibiting them; and that should any article be accidently injured, lost or stolen, the Directors will give all the assistance in their power towards the recovery of the same, but will not make any payment for the value thereof.

Exhibiters must provide for the delivery of their articles upon the show ground. The Association can not in any case make provision for their transportation, or be subjected to any expense therefor, either in their delivery at or return from the grounds; all the expenses connected therewith must be provided for by the Exhibiters themselves.

16. The Treasurer will be prepared to commence paying the premiums on Saturday, —— at 9 a. m., and parties who shall have prizes awarded them are particularly requested to apply for them before leaving Hamilton, or leave a written order with some person to receive them, stating the articles for which prizes are claimed.

N. B.—In case the Directors shall require any particular information in reference to animals or articles taking first prizes, the owners will be expected to transmit it, when requested to do so.

☞ The Local Committee will make arrangements with Steamboat and Railroad proprietors for carrying articles and passengers at reduced rates.

Provender will be provided by the Association for live stock at cost price.

Arrangements will be made with the Customs department for the free entry of articles for competition.

PRIZE LIST.

DEPARTMENT FIRST.

LIVE STOCK, AGRICULTURAL AND HORTICULTURAL PRODUCTS, AND IMPLEMENTS.

HORSES.

CLASS I.—BLOOD HORSES.

Sect.		$	c.
1.	Best thorough-bred stallion, 4 years old and upwards	40	00
	2d do	25	00
	3d do	12	00
	4th do	9	00
2.	Best thorough-bred 3 years old stallion	22	00
	2d do	14	00
	3d do	8	00
	4th do	4	00
3.	Best thorough-bred 2 years old stallion	14	00
	2d do	10	00
	3d do	6	00
	4th do	3	00
4.	Best thorough-bred yearling colt	8	00
	2d do	6	00
	3d do	4	00
	4th do	3	00
5.	Best thorough-bred stallion of any age, Gold Medal, value	40	00
6.	Best thorough-bred 3 years old filly	18	00
	2d do	12	00
	3d do	8	00
	4th do	4	00
7.	Best thorough-bred 2 year old filly	14	00
	2nd do	11	00
	3d do	7	00
	4th do	4	00
8.	Best thorough-bred yearling filly	10	00
	2d do	6	00
	3d do	4	00
	4th do	3	00
9.	Best thorough-bred mare and foal	22	00
	2d do	14	00
	3d do	7	00
	4th do	4	00
10.	Extra entries.		

CLASS II.—AGRICULTURAL HORSES.

1.	Best stallion for agricultural or general purposes, 4 years old and upwards	40	00
	2d do	25	00
	3d do	12	00
	4th do	9	00
2.	Best 3 years old stallion	22	00
	2d do	14	00
	3d do	8	00
	4th do	4	00
3.	Best 2 years old stallion	14	00
	2d do	10	00
	3d do	6	00
	4th do	3	00
4.	Best yearling colt	8	00
	2d do	6	00
	3d do	4	00
	4th do	3	00
5.	Best agricultural or general purpose stallion of any age, Gold Medal, value	40	00
6.	Best 3 years old filly	18	00
	2d do	12	00
	3d do	8	00
	4th do	4	00
7.	Best 2 years old filly	14	00
	2d do	9	00
	3d do	5	00
	4th do	3	00
8.	Best yearling filly	8	00
	2d do	6	00
	3d do	4	00
	4th do	3	00

Sect.		$ c.
9. Best brood mare and foal, or evidence that the foal has been lost		22 00
2d	do	14 00
3d	do	7 00
3th	do	4 00
10. Best span matched farm or team horses		20 00
2d	do	15 00
3d	do	10 00
4th	do	5 00
11. Extra entries.		

CLASS III.—ROAD OR CARRIAGE HORSES.

1. Best roadster or carriage stallion, 4 years old and upwards		40 00
2d	do	25 00
3d	do	12 00
4th	do	9 00
2. Best do. 3 years old		22 00
2d	do	14 00
3d	do	8 00
4th	do	4 00
3. Best do. 2 years old		14 00
2d	do	10 00
3d	do	6 00
4th	do	3 00
4. Best yearling colt		8 00
2d	do	6 00
3d	do	4 00
4th	do	3 00
5. Best stallion of any age, Gold Medal, value		40 00
6. Best 3 years old filly		18 00
2d	do	12 00
3d	do	8 00
4th	do	4 00
7. Best 2 years old filly		14 00
2d	do	9 00
3d	do	5 00
4th	do	3 00
8. Best yearling filly		8 00
2d	do	6 00
3d	do	4 00
4th	do	3 00
9. Best brood mare and foal, or, &c		22 00
2d	do	14 00
3d	do	7 00
4lh	do	4 00
10. Best pair matched carriage horses		20 00
2d	do	15 00
3d	do	10 00
4th	do	5 00
11. Best single carriage horse in harness		10 00
2d	do	8 00
3d	do	6 00
4th	do	4 00
12. Best saddle horse		10 00
2d	do	8 00
3d	do	6 00
4th	do	4 00

CLASS IV.—HEAVY DRAUGHT HORSES.

1. Best heavy draught stallion		40 00
2d	do	25 00
3d	do	12 00
4th	do	9 00
2. Best 3 years old stallion		22 00
2d	do	14 00
3d	do	8 00
4th	do	4 00
3. Best 2 years old stallion		14 00
2d	do	10 00
3d	do	6 00
4th	do	3 00
4. Best yearling colt		8 00
2d	do	6 00
3d	do	4 00
4th	do	3 00
5. Best draught stallion of any age, Gold Medal, value		40 00
6. Best 3 years old filly		18 00
2d	do	12 00
3d	do	8 00
4th	do	4 00
7. Best 2 years old filly		14 00
2d	do	9 00
3d	do	5 00
4th	do	3 00
8. Best yearling filly		8 00
2d	do	6 00
3d	do	4 00
4th	do	3 00
9. Best broad mare and foal, or evidence that the foal has been lost		22 00
2d	do	14 00
3d	do	7 00
4th	do	4 00
10. Best span of draught horses		20 00
2d	do	15 00
3d	do	10 00
4th	do	5 00
11. Extra Entries.		

CLASS V.—HORSES OF ALL CLASSES.

For the best stallion of any age or blood.	100 00

CATTLE.

CLASS VI.—DURHAMS.

1. Best bull 4 years old and upwards		36 00
2d	do	28 00
3d	do	20 00
4th	do	10 00
2. Best 3 years old bull		32 00
2d	do	24 00
3d	do	16 00
4th	do	8 00
3. Best 2 year old bull		25 00
2d	do	18 00
3d	do	12 00
4th	do	6 00
4. Best 1 year old bull		20 00
2d	do	15 00
3d	do	10 00
4th	do	5 00
5. Best bull calf (under 1 year)		16 00
2d	do	12 00
3d	do	8 00
4th	do	4 00
6. Best bull of any age, Gold Medal, value		40 00
7. Best cow		30 00
2d	do	15 00
3d	do	10 00
4th	do	5 00

Sect.		$ c.
8. Best 3 years old cow		16 00
2d	do	12 00
3d	do	8 00
4th	do	5 00
9. Best 2 years old heifer		12 00
2d	do	9 00
3d	do	6 00
4th	do	4 00
10. Best 1 year old heifer		10 00
2d	do	7 00
3d	do	5 00
4th	do	3 00
11. Best heifer calf (under one year)		6 00
2d	do	4 00
3d	do	3 00
4th	do	2 00
12. Best Herd of Durhams, consisting of one bull and not less than four cows and heifers, of any age		60 00

N.B.—A certificate of HERD BOOK PEDIGREE, or a sufficient reference to the Herd Book, in which they are registered, will be required of all animals in the Durham class, along with or previous to the application to enter them for Exhibition. The pedigrees of others should be as full and correct as possible.

CLASS VII.—DEVONS.

List of Prizes the same as in Class vi.

CLASS VIII.—HEREFORDS.

Prizes the same as in Class vi.

CLASS IX.—AYRSHIRES.

Prizes the same as Class vi.

CLASS X.—GALLOWAY CATTLE.

Prizes the same as Class vi.

CLASS XI.

BULL OF ANY BREED.

For the best bull of any age or breed		80 00

CLASS XII.—GRADE CATTLE.

1. Best cow		20 00
2d	do	15 00
3d	do	10 00
4th	do	5 00
2. Best 4 years old grade cow		20 00
2d	do	15 00
3d	do	10 00
4th	do	5 00
3. Best 3 years old cow		16 00
2d	do	12 00
3d	do	8 00
4th	do	5 00
4. Best 2 years old heifer		12 00
2d	do	9 00
3d	do	6 00
4th	do	4 00
5. Best 1 year old heifer		10 00
2d	do	7 00
3d	do	5 00
4th	do	3 00
6. Best heifer calf (under 1 year)		6 00
2d	do	4 00
3d	do	3 00
4th	do	2 00
7. Extra entries.		

DIPLOMAS will be awarded to the *breeders* or *importers* of bulls and stallions which take *first prizes*, when their names and residences are given.

The Judge shall ascertain, in deciding on bull calves in any of the foregoing classes, whether the animal has been suckled or raised by pail, and make allowances accordingly. The exact age of young animals must be stated on the cards, and will be taken into consideration by the judges in making their awards; and any person understating the age of an animal will forfeit the premium to which he might otherwise be entitled.

A certificate to be produced to show the breeding of animals in class xii.

Young cattle may compete, if the exhibitor think fit, in an older section than that to which they properly belong; but no animal will be allowed to compete in more than one of the foregoing sections, except for the Medals, or where all classes and ages compete together, or in the herds.

An animal will not be allowed to compete as a three-year old cow unless it has had a calf, but a two year old having had a calf will be allowed to compete as a two-year old heifer, if the owner thinks fit.

Prizes will be awarded to animals of other breeds than those above mentioned, if deemed worthy.

CLASS XIII.—FAT AND WORKING CATTLE, ANY BREED.

1. Best fat ox or steer		30 00
2d	do	20 00
3d	do	13 00
4th	do	7 00
2. Best fat cow or heifer		30 00
2d	do	20 00
3d	do	13 00
4th	do	7 00
3. Best yoke of working oxen		20 00
2d	do	13 00
3d	do	8 00
4th	do	4 00
4. Best yoke of 3 years old steers		16 00
2d	do	10 00
3d	do	6 00
4th	do	4 00
5. Best team of oxen, not less than 10 yoke, from one township, the property of any number of persons		40 00
6. Extra Entries.		

SHEEP.

CLASS XIV.—LEICESTERS.

1. Best ram, two shears and over		16 00
2d	do	10 00
3d	do	5 00
4th	do	3 00
2. Best shearling ram		16 00
2d	do	10 00
3d	do	5 00
4th	do	3 00

Sect.		$ c.
3. Best ram lamb		7 00
2d	do	4 00
3d	do	3 00
4th	do	2 00
4. Best 2 ewes, two shears and over		16 00
2d	do	12 00
3d	do	6 00
4th	do	4 00
5. Best 2 shearling ewes		12 00
2d	do	8 00
3d	do	4 00
4th	do	3 00
6. Best 2 ewe lambs		6 00
2d	do	4 00
3d	do	2 00
4th	do	1 00

CLASS XV.—COTSWOLDS.

Prizes the same as in Class xiv.

CLASS XVI.—CHEVIOTS.

Prizes the same as in Class xiv.

CLASS XVII.—LONG WOOLED SHEEP, NOT PURE LEICESTERS, COTSWOLD, OR CHEVIOTS.

Prizes the same as in Class xiv.

CLASS XVIII.—SOUTHDOWNS.

Prizes the same as in Class xiv.

CLASS XIX.—MERINOS AND SAXONS.

Prizes the same as in Class xiv.

CLASS XX.

RAMS OF ALL BREEDS.

1. For the best ram of any Long Wooled breed, of any age.....Silver Medal.
2. For the best ram of any Short Wooled breed, any age ..... Silver Medal.

CLASS XXI.—FAT SHEEP.

1. Best 2 fat wethers		12 00
2d	do	8 00
3d	do	4 00
4th	do	3 00
2. Best 2 fat ewes		12 00
2d	do	8 00
3d	do	4 00
4th	do	3 00

3. Extra entries in Sheep.

Sheep that have been shown in any other class cannot compete as Fat Sheep.

[Sheep will not be allowed to compete with more than the present year's growth of wool upon them.]

PIGS—LARGE BREEDS.

CLASS XXII.—YORKSHIRES.

1. Best Boar, 1 year and over		15 00
2d	do	10 00
2d	do	6 00
4th	do	4 00
2. Best Breeding Sow, 1 year and over.		10 00
2d	do	7 00
3d	do	4 00
4th	do	3 00
3. Best Boar, under 1 year		10 00
2d	do	6 00
3d	do	4 00
4th	do	2 00
Sect.		$ c.
4. Best Sow, under 1 year old		5 00
2d	do	4 00
3d	do	3 00
4th	do	2 00

CLASS XXIII.—LARGE BERKSHIRES.

Prizes the same as in Class xxii.

CLASS XXIV.—ALL OTHER LARGE BREEDS.

Prizes the same as in Class xxii.

PIGS—SMALL BREEDS.

CLASS XXV.—SUFFOLKS.

Prizes the same as in Class xxii.

CLASS XXVI.—IMFROVED BERKSHIRES.

Prizes the same as in Class xxii.

CLASS XXVII.—ALL OTHER SMALL BREEDS.

Prizes the same as in Class xxii.

CLASS XXVIII.—PIGS OF ALL BREEDS.

Best Large Breed Boar, of any age...Silver Medal.
Best Small Breed Boar, of any age..Silver Medal.

In the classes of Pigs, the *precise age* of the animal is to be *stated on the cards.*

With the view of encouraging largely the importation of improved stock, the exhibiter of any male animal imported into this Province from Europe since the last Exhibition, which shall take the first prize in any of the above classes, will be paid three times the amount of the premium offered in the list; the exhibiter of any female animal imported from Europe within the same time taking the first prize will be paid double the amount offered; the exhibitor of any male animal imported into the Province from any part of America within the same time, taking the first prize, will be paid double the amount of prize offered; and of any female animal imported within the same time, and taking the first prize, one half addition to the amount of prize offered in the list. Such animals to be the *bona fide* property of persons residing in Upper Canada. Satisfactory evidence must have been given at the time of making the entry that the animal has been imported within the time named, or the increased prize will not be paid. These conditions not to apply this year to black or horned cattle from the adjoining States.

CLASS XXIX.—POULTRY, &C.

1. Best pair white dorkings		4 00
2d	do	2 00
2. Best pair of spangled do		4 00
2d	do	2 00
3. Best pair of black Polands		4 00
2d	do	2 00
4. Best pair of white Polands		4 00
2d	do	2 00
5. Best pair of golden Polands		4 00
2d	do	2 00
6. Best pair of silver Polands		4 00
2d	do	2 00
7. Best pair of game fowls		4 00
2d	do	2 00
8. Best pair of Jersey blues		4 00
2d	do	2 00

Sect.		$ c.
9. Best pair of Cochin China, Shanghai, Canton, or Bramah Pootra fowls		4 00
2d	do	2 00
10. Best pair of black Spanish fowls		4 00
2d	do	2 00
11. Best pair of black Java fowls		4 00
2d	do	2 00
12. Best pair Bolton grays		4 00
2d	do	2 00
13. Best pair of Bolton bays		4 00
2d	do	2 00
14. Best pair of Hamburg fowls		4 00
2d	do	2 00
15. Best pair of Dominique		4 00
2d	do	2 00
16. Best pair of feathered-legged bantams		2 00
2d	do	1 00
17. Best pair of smooth-legged bantams		2 00
2d	do	1 00
18. Best pair of turkeys (white or colored)		4 00
2d	do	2 00
19. Best pair of wild turkeys		4 00
2d		2 00
20. Best pair of large geese		4 00
2d	do	2 00
21. Best pair Bremen geese		4 00
2d	do	2 00
22. Best pair of Chinese geese		4 00
2d	do	2 00
23. Best pair of Muscovy ducks		4 00
2d	do	2 00
24. Best pair common ducks		4 00
2d	do	2 00
25. Best pair of Aylesbury ducks		4 00
2d	do	2 00
26. Best pair of Poland ducks		4 00
2d	do	2 00
27. Best pair of Rouen ducks		4 00
2d	do	2 00
28. Best pair of Guinea fowls		4 00
2d	do	2 00
29. Best pair of pea fowls		4 00
2d	do	2 00
30. Best collection of pigeons		4 00
2d	do	2 00
31. Best lot of poultry, in one pen, and owned by the exhibitor		6 00
32. Best collection of poultry entered in the various classes by one exhibiter		8 00
33. Best pair of rabbits		2 00
34. Best lot of rabbits		4 00
35. Other entries.		

Exhibiters will have to provide their own coops, and are recommended to have them about 3 feet cube in size, for convenience of arrangement on the grounds.

CLASS XXX.—FOREIGN STOCK.

Sect.		$ c.
1. Best stallion for agricultural purposes, diploma and		15 00
2d	do	12 00
2. Best blood stallion, diploma and		15 00
2d	do	12 00
3. Best Leicester ram, diploma and		8 00
2d	do	6 00
4. Best 3 Leicester ewes, diploma and		8 00
2d	do	6 00
5. Best Southdown ram, diploma and		8 00
2d	do	6 00
6. Best 2 Southdown ewes, diploma and		8 00
2d	do	6 00
7. Best Merino and Saxon ram, diploma and		8 00
2d	do	6 00
8. Best 2 Merino or Saxon ewes, diplo- and		8 00
2d	do	6 00
9. Best boar, diploma and		8 00
2d	do	6 00
10. Best breeding sow, diplom and		8 00
2d	do	6 00
11. Extra entries in Foreign Stock.		

AGRICULTURAL PRODUCTIONS.

CLASS XXXI.—GRAINS, SEEDS, &C.

The Canada Company's prize of		100 00
1. For the best 25 bushels of Fall Wheat, the produce of Canada West, being the growth of the year 1860. Each sample must be of one distinct variety, pure and unmixed. The prize to be awarded to the actual grower only of the Wheat, which is to be given up to and become the property of the Association, for distribution to the County Societies for SEED.		
2d	do. by the Association,	50 00
3d	do	40 00
4th	do	30 00
5th	do	20 00

The winners of the 2d, 3d, 4th and 5th prizes to retain their wheat.

The winners of these prizes will be required to furnish the Secretary with a written statement of the nature of the soil, mode of preparation, the variety and quantity of seed, and time of sowing, manures (if any used), produce per acre of grain, and any other particulars of practical importance, before being paid the amount of premium. Winners of prizes in the succeeding sections of this class will also be expected to furnish information when applied for.

2. Best two bushels of winter wheat		14 00
2d	do	11 00
3d	do	8 00
4th	do	6 00
5th	do 3 vols.	Trans.
3. Best two bushels spring wheat		14 00
2d	do	11 00
3d	do	8 00
4th	do	6 00
5th	do 3 vols.	Trans.
4. Best two bushels of barley (two rowed)		8 00
2d	do	5 00
3d	do	3 00
4th	do	2 00
5th	do vol.	Trans.
5. Best 2 bushels of barley (6 rowed)		8 00
2d	do	5 00
3d	do	3 00
4th	do	2 00
5th	do vol.	Trans.

Sect.			$ c.
6.	Best two bushels rye		7 00
	2d	do	5 00
	3d	do	3 00
	4th	do	2 00
	5th	do	vol. Trans.
7.	Best two bushels of oats (white)		8 00
	2d	do	5 00
	3d	do	3 00
	4th	do	2 00
	5th	do	vol. Trans.
8.	Best two bushels of oats (black)		8 00
	2d	do	5 00
	3d	do	3 00
	4th	do	2 00
	5th	do	vol. Trans.
9.	Best two bushels of field peas		8 00
	2d	do	6 00
	3d	do	4 00
	4th	do	3 00
	5th	do	vol, Trans.
10.	Best two bushels of marrow fat peas.		8 00
	2d	do	6 00
	3d	do	4 00
	4th	do	3 00
	5th	do	vol. Trans.
11.	Best two bushels tares		8 00
	2d	do	6 00
	3d	do	4 00
	4th	do	3 00
	5th	do	vol. Trans.
12.	Best bushel of white field beans		8 00
	2d	do	6 00
	3d	do	4 00
	4th	do	3 00
	5th	do	vol. Trans.
13.	Best two bushels Indian corn in ear, (white)		9 00
	2d	do	7 00
	3d	do	4 00
	4th	do	vol. Trans.
14.	Best two do [yellow]		9 00
	2d	do	7 00
	3d	do	4 00
	4th	do	vol. Trans.
15.	Best bushel of timothy seed		12 00
	2d	do	8 00
	3d	do	4 00
	4th	do	2 00
16.	Best bushel clover seed		12 00
	2d	do	8 00
	3d	do	4 00
	4th	do	2 00
17.	Best bushel Alsike clover seed		12 00
	2d	do	8 00
	3d	do	4 00
	4th	do	2 00
18.	Best bushel hemp seed		9 00
	2d	do	6 00
	3d	do	3 00
	4th	do	vol. Trans.
19.	Best bushel flax seed		9 00
	2d	do	6 00
	3d	do	3 00
	4th	do	vol. Trans.
20.	Best bushel mustard seed		9 00
	2d	do	6 00
	3d	do	3 00
	4th	do	vol. Trans.
21.	Best Swedish turnip seed, from transplanted bulbs, not less than 20 lbs.		9 00
	2d	do	6 00
	3d	do	3 00
	4th	do	vol. Trans.
22.	Best 14 lbs. field carrot seed		9 00
	2d	do	6 00
	3d	do	3 00
	4th	do	vol. Trans.
23.	Best 12 lbs red or yellow mangel wurzel seed		9 00
	2d	do	6 00
	3d	do	3 00
	4th	do	vol. Trans.
24.	Best bale of hops, not less than 112 lbs		30 00
	2d	do	18 00
	3d	do	12 00
	5th	do	6 00
25.	Best bushel horse beans		7 00
	2d	do	4 00
	3d	do	2 00
	4th	do	vol. Trans.
26.	Best bushel buckwheat		4 00
	2d	do	3 00
	3d	do	2 00
	4th	do	vol Trans.
27.	Best bush. Chinese millet		4 00
	2d	do	3 00
	3d	do	2 00
	4th	do	vol. Trans
28.	Extra Entries.		

CLASS XXXII.—ROOTS AND OTHER FIELD CROPS.

1.	Best bush. pink-eyed potatoes		4 00
	2d	do	3 0
	3d	do	2 00
	4th	do	vol. Trans.
2.	Best bush. cup potatoes		4 00
	2d	do	3 00
	3d	do	2 00
	4th	do	vol. Trans.
3.	Best bush. goldfinders		4 00
	2d	do	3 00
	3d	do	2 00
	4th	do	vol. Trans.
4.	Best bush. white potatoes		4 00
	2d	do	3 00
	3d	do	2 00
	4th	do	vol Trans.
5.	Best bush. red potatoes		4 00
	2d	do	3 00
	3d	do	2 00
	4th	do	vol. Trans.
6.	Best bush. blue potatoes		4 00
	2d	do	3 00
	3d	do	2 00
	4th	do	vol. Trans.
7.	Best bush. of any other sort		4 00
	2d	do	3 00
	3d.	do	2 00
	4th	do	vol. Trans.
8.	Best bush. Swede turnips		4 00
	2d	do	3 00
	3d	do	2 00
	4th	do	vol. Trans.

Sect.		$ c.
9.	Best bush. of white globe turnips....	4 00
2d	do	3 00
3d	do	2 00
4th	do.....vol.	Trans.
10.	Best bush. of Aberdeen yel. turnips.	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol.	Trans.
11.	Best 20 roots red carrots	4 00
2d	do	3 00
3d	do	2 00
4th	do ..... vol.	Trans.
12.	Best 20 roots white or Belgian do....	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol.	Trans.
13.	Best 12 roots mangel wurzel (long red	4 00
2d	.....	3 00
3d	do	2 00
4th	do .....vol.	Trans.
14.	Best 12 roots yellow globe mangel wurzel.....	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol.	Trans.
15.	Best 12 roots yel. mangel wurzel...	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol.	Trans.
16.	Best 12 roots of kohl rabi.....	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol	Trans.
17.	Best 12 roots of sugar beet..... ...	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol.	Trans.
18.	Best 20 roots of parsnips	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol.	Trans.
19.	Best 20 roots of chicory	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol.	Trans.
20.	Best 2 large squashes for cattle	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol.	Trans.
21.	Best 2 mammoth field pumpkins.....	4 00
2d	do	3 00
3d	do	2 00
4th	do .....vol.	Trans.
22.	Best 4 common yellow field do.....	4 00
2d	do	3 00
3d	do	2 50
4th	do.....vol.	Trans.
23.	Best 20 lbs of tobacco leaf, growth of Canada West	4 00
2d	do	3 00
3d	do.....	2 00
4th	do .....vol.	Trans.
24.	Best broom corn brush, 28 lbs	4 00
2d	do.....	3 00
3d	do.....	2 00
4th	do.....vol.	Trans.

Sect.		$ c.
	The Canada Company's Prize for Flax.	
25.	Best 112 lbs of Flax.....	24 00
2d	do. by the Association.	18 00
3d	do.....	12 00
4th	do.....	6 00
	The Canada Company's Prize for Hemp.	
26.	Best 112 lbs of Hemp	16 00
2d	do. by the Association.	12 00
3d	do	8 00
4th	do.....	6 00
27.	Other entries.	

[The roots in the above class to be certified as of field culture by the Exhibitor.]

Turnips of other varieties than those above named will receive prizes if worthy.

The names of the different varieties of wheat or other grain, roots, &c., must be inserted in the list of entries by each exhibiter.

HORTICULTURAL PRODUCTS.

CLASS XXXIII.—FRUIT.

1.—	Best 20 varieties of apples, named [six of each]	8 00
2d	do.....	6 00
3d	do.....	4 00
4th	do..... set	Trans.
2.	Best 12 table apples, named, [Fall sort]	4 00
2d	do.....	2 50
3d	do.....	1 50
4th	do.....	1 00
3.	Best 12 table apples, named, [Winter sort]	4 00
2d	do.....	2 50
3d	do.....	1 50
4th	do.....	1 00
4.	Best 12 baking apples, named.....	4 00
2d	do.....	2 50
3d	do.....	1 50
4th	do.....	1 00
5.	Best 20 varieties of pears, named, [3 of each]	8 00
2d	do.....	6 00
3d	do.....	4 00
4th	do..... 3 vols.	Trans.
6.	Best 12 table pears, named, [Fall sort]	4 00
2d	do.....	2 50
3d	do.....	1 50
4th	do.....	1 00
7.	Best 12 table pears, named, [Winter sort]	4 00
2d	do.....	2 50
3d	do.....	1 50
4th	do.....	1 00
8.	Best 12 plums, named, [Dessert] ...	4 00
2d	do.....	2 50
3d	do.....	1 00
4th	do.....vol.	Trans.
9.	Best 12 baking plums, named.....	4 00
2d	do.....	2 50
3d	do.....	1 50
4th	do.....	1 00

Sect.		$ c.
10. Best quart of damsons [English]		4 00
2d	do	2 50
3d	do	1 50
4th	do	vol. Trans.
11. Best 12 peaches, grown in open air, named		4 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
12. Best 10 varietes of peaches, grown in open air (3 of each)		5 00
2d		4 00
3d		3 00
4th	do	2 00
13. Best 12 quinces		3 00
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans.
14. Best 3 clusters of golden or white grapes, (hot-house)		4 00
2d	do	3 00
3d	do	2 00
4th	do	1 00
15. Best 3 clusters black grapes, (hot-house)		4 00
2d	do	3 00
2d	do	2 00
4th	do	1 00
16. Best 4 clusters black grapes, grown in open air		3 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
17. Best 4 clusters white grapes, grown in open air		3 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
18. Best and heaviest 2 clusters of grapes (hot-house)		3 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
19. Best and heaviest 2 bunches grapes, (open air)		3 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
20. Best collection of grapes, grown in open air, 2 clusters of each sort		5 00
2d	do	4 00
3d	do	3 00
4th	do	2 00
21. Best green flesh melon		3 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
22. Best red or scarlet flesh melon		3 00
2d	do	2 50
3d	do	1 50
4th	do	vol. Trans.
23. Best Water Melon		3 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
24. Best 6 citrons for preserving		3 00
2d	do	2 50
3d	do	1 50
4th	do	vol. Trans.
25. Best 6 nectarines		3 00
2d	do	2 50
3d	do	I 50
4th	do	1 00
26. Best display of fruit, the growth of exhibiter, (distinct from other entries) not more than three specimens of each sort		10 00
2d	do	8 00
3d	do	6 00
4th	do	4 00
27. To the exhibiter who shall obtain the largest number of first prizes for fruit		Silver Medal.

CLASS XXXIV.—GARDEN VEGETABLES.

1. Best 12 roots of salsify		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
2. Best 4 heads brocoli		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
3. Best 4 heads cauliflower		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
4. Best 4 heads cabbage, (summer)		2 50
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans
5. Best 4 heads cabbage, (winter)		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
6. Best 4 sorts winter cabbage, including savoys, 2 of each sort		4 00
2d	do	3 00
3d	do	2 00
4th	do	1 00
7. Best 4 heads red cabbage		2 50
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans.
8. Best 12 carrots for table, long red		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
9. Best 12 early horn carrots		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
10. Best 12 table parsnips		2 50
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans.
11. Best 6 roots of white celery		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00

Sect.		$ c.
12. Best 6 roots of red celery		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
13. Best dozen capsicums, (ripe)		2 50
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans.
14. Best collection of capsicums, (ripe) six of each sort		3 00
2d	do	2 50
3d	do	2 00
4th	do	1 50
15. Best 6 egg plants, purple		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
16. Best 12 tomatoes, red		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
17. Best 12 tomatoes, yellow		2 50
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans.
18. Best assorted collection of tomatoes, 6 each of large sorts, and 12 each of small sorts		3 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
19. Best 12 blood beets		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
20. Best peck of white onions		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
21. Best peck of yellow onions		2 50
2d	do	2 00
3d	do	1 50
4th	do	Trans.
22. Best peck of red onions		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
23. Best 12 white turnips (table)		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
24. Best 12 yellow turnips, (table)		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
25. Best 12 ears sweet corn		2 50
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans.
26. Best and greatest variety of potatoes, half peck of each sort, named		4 00
2d	do	3 00
3d	do	2 00
4th	do	1 00
27. Best 4 squashes, (table)		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
28. Best and greatest variety of vegetables, [distinct from other entries], each kind named		5 00
2d	do	4 00
3d	do	3 00
4th	do	2 00
29. The exhibiter taking the largest number of first prizes in garden vegetables		Silver Medal.
30. Extra entries.		

CLASS XXXV.—PLANTS AND FLOWERS.

1. Best dozen dahlias, named		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
2. Best and largest collection of dahlias		6 00
2d	do	5 00
3d	do	4 00
4th	do	3 00
3. Best bouquet of cut flowers, (for table)		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
4. Best hand bouquet		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
5. Best collection of green house plants, not less than 12 specimens in flower		12 00
2d	do	8 00
3d	do	6 00
4th	do	3 00
6. Best twelve pansies		2 50
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans.
7. Best six fuchsias, in flower		3 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
8. Best collection of annuals in bloom.		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
9. Best six cockscombs		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
10. Best 6 balsams in bloom		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
11. Best collection of asters		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
12. Best collection of 10 weeks' stock		2 50
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans.
13. Best collection of hybrid perpetual roses, not less than 12 blooms		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00

Sect.		$ c.
14. Best floral ornament or design		6 00
2d	do	5 00
3d	do	4 00
4th	do	3 00
15. Best collection of verbenas, not less than 12 varieties		3 00
2d	do	2 50
3d	do	1 50
4th	do	1 00
16. Best 6 petunias		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
17. Best collection perennial phloxes		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
18. Best 6 hardy shrubs		2 50
2d	do	2 00
3d	do	1 50
4th	do	1 00
19. Best collection hollyhocks		2 50
2d	do	2 00
3d	do	1 50
4th	do	vol. Trans.
20. Best display of plants in flower, distinct from other entries		10 00
2d	do	8 00
3d	do	6 00
4th	do	4 00
21. Best collection of native plants, dried and named		7 00
2d	do	5 00
3d	do	3 00
4th	do	2 00
22. Best specimen of useful and ornamental rustic work for the garden		5 00
2d	do	4 00
3d	do	3 00
4th	do	1 00
23. To the exhibiter taking the largest number of 1st prizes in plants and flowers		Silver Medal.
24. Extra entries.		

Competitors in classes 33, 34, and 35, are requested to deliver their various productions in a clean and proper state for exhibition.

CLASS XXXVI.—DAIRY PRODUCTS, &C.

1. Best firkin of butter, in shipping order, not less than 56 lbs		15 00
2d	do	12 00
3d	do	9 00
4th	do	6 00
5th	do	3 00
2. Best butter, not less than 28 lbs., in firkins, crocks, or tubs		10 00
2d	do	8 00
3d	do	6 00
4th	do	4 00
5th	do	3 vols. Trans.
3. Best 28 lbs. of butter made in June, statement of the manner of making and preserving to be furnished with the entry—		Silver Medal.
4. Best cheese, not less than 30 lbs		12 00
2d	do	10 00
3d	do	8 00
4th	do	6 00
5th	do	4 00
5. Best two stilton cheese, not less than 14 lbs. each		12 00
2d	do	10 00
3d	do	8 00
4th	do	6 00
5th	do	4 00
6. Best honey, in the comb, not less than 10 lbs		4 00
2d	do	3 00
3d	do	2 00
4th	do	1 00
7. Best jar of clear honey		4 00
2d	do	3 00
3d	do	2 00
4th	do	vol. Trans.
8. Extra entries.		

Persons taking premiums on dairy products will be required to furnish statements of the mode of manufacture, including the breed and number of cows, size of farm, description of dairy premises, treatment of milk, salt, &c., used, quantity of produce, and any other practical information that they may be able to afford, before being paid the amount of premium.

CLASS XXXVII.—AGRICULTURAL IMPLEMENTS, WORKED BY HORSE OR OTHER POWER.

1. Best iron plough, diploma and		15 00
2d	do	10 00
3d	do	5 00
2. Best wooden plough, diploma and		15 00
2d	do	10 00
3d	do	5 00
3. Best subsoil plough, diploma and		15 00
2d	do	10 00
3d	do	5 00
4. Best double shear trench plough		12 00
2d	do	8 00
3d	do	5 00
5. Best double mould plough		12 00
2d	do	8 00
3d	do	5 00
6. Best pair of harrows		7 00
2d	do	5 00
3d	do	3 00
7. Best horse-power thresher and separator, diploma and		25 00
2d	do	15 00
3d	do	10 00
8. Best grain drill, diploma and		15 00
2d	do	10 00
3d	do	5 00
9. Best straw cutter		7 00
2d	do	5 00
3d	do	3 00
10. Best smut machine		6 00
2d	do	4 00
3d	do	2 00
11. Best portable grist mill		15 00
2d	do	10 00
3d	do	5 00

Sect.	$	c.
12. Best grain cracker	10	00
2d do	8	00
3d do	6	00
13. Best corn and cob crusher	5	00
2d do	4	00
3d do	3	00
14. Best clover cleaning mochine	15	00
2d do	10	00
3d do	5	00
15. Best cider mill and press	15	00
2d do	10	00
3d do	5	00
16. Best two-horse waggon	15	00
2d do	10	00
3d do	5	00
17. Best one-horse light market waggon	12	00
2d do	9	00
3d do	5	00
18. Best horse cart	7	00
2d do	5	00
3d do	3	00
19. Best farm sleigh	9	00
2d do	6	00
3d do	3	00
20. Best horse rake	5	00
2d do	4	00
3d do	3	00
21. Best metal roller	12	00
2d do	8	00
3d do	4	00
22. Best wooden roller	8	00
2d do	6	00
3d do	4	00
23. Best stump extractor	12	00
2d do	8	00
3d do	4	00
24. Best reaping machine, dip. and	25	00
2d do	15	00
3d do	10	00
25. Best mowing machine, dip. and	25	00
2d do	15	00
3d do	10	00
26. Best combined mower and reaper, dip. and	25	00
2d do	15	00
3d do	10	00
27. Best patato digger	4	00
2d do	3	00
3d do	vol. Trans.	
28. Best field or two-horse cultivator	15	00
2d do	10	00
3d do	5	00
29. Best horse hoe, or single horse cultivator	4	00
2d do	3	00
3d do	2	00
30. Best post hole borer	12	00
2d do	8	00
3d do	4	00
31. Best brick making mackine	10	00
2d do	6	00
3d do	4	00
32. Best flax dressing machine	40	00
2d do	25	00
3d do	15	00
33. For the most valuable machine or implement for the farmer, either newly invented, or an improvement on any one in use, Silver Medal.		
34. Extras.		

CLASS XXXVIII.—AGRICULTURAL TOOLS AND IMPLEMENTS, CHIEFLY FOR HAND USE.

1. Best fanning mill, diploma and	7	00
2d do	5	00
3d do	3	00
2. Best seed drill or barrow	5	00
2d do	4	00
3d do	3	00
3. Best straw cutter	6	00
2d do	5	00
3d do	4	00
4. Best machine for cutting roots for stock	6	00
2d do	5	00
3d do	4	00
5: Best cheese press	8	00
2d do	6	00
3d do	3	00
6. Best churn	4	00
2d do	3	00
3d do	2	00
7. Best garden walk or lawn roller	4	00
2d do	3	00
3d do	2	00
8. Best thistle extractor	3	00
2d do	2	00
3d do	vol. Trans.	
9. Best farm gate	4	00
2d do	3	00
3d do	1	00
18. Best farm fence of wood	6	00
2d do	4	00
3d do	2	00
11. Best specimen wire fencing, not less than 2 rods, erected on the ground.	8	00
2d do	6	00
3d do	4	00
12. Best wooden pump	4	00
2d do	3	00
3d do	2	00
13. Best half-dozen hay rakes.	3	00
2d do	2	00
3d do	1	00
14. Best half-dozen manure forks	4	00
2d do	3	00
3d do	2	00
15. Best half-dozen hay forks	4	00
2d do	3	00
3d do	2	00
16. Best half-dozen scythe snaiths	4	00
2d do	3	00
3d do	2	00
17. Best ox-yoke and bows	3	00
2d do	2	00
3d do	vol. Trans.	
18. Best grain cradle	3	00
2d do	2	00
3d do	vol. Trans.	
19. Best half-dozen grain shovels	4	00
2d do	2	50
3d do	1	00

Sect.		$ c.
20. Best half-dozen iron (flat) shovels		4 00
2d	do	2 50
3d	do	1 00
21. Best half-dozen spades		4 00
2d	do	2 50
3d	do	1 00
22. Best half-dozen steel hoes		4 00
2d	do	2 50
3d	do	1 00
23. Best half-dozen grass scythes		4 00
2d	do	2 50
3d	do	1 00
24. Best half-dozen cradle scythes		4 00
2d	do	2 50
3d	do	1 00
25. Best set of draining tools		6 00
2d	do	4 00
3d	do	2 00
26. Best machine for making drain tiles, diploma and		10 00
2d	do	6 00
3d	do	4 00
27. Best straw fork, wood		3 00
2d	do	2 00
3d	do	Trans.
28. Extra entries.		

CLASS XXXIX.—CATTLE FOOD—MANURES, AND MISCELLANEOUS.

1. Best specimen Oil Cake		4 00
2d	do	3 00
3d	do	2 00
2. Best specimen prepared food for cattle		4 00
2d	do	3 00
3d	do	2 00
3. Best specimen ground bones for manure		4 00
2d	do	3 00
3d	do	2 00
4. Best specimen other artificial manure		4 00
2d	do	3 00
3d	do	2 00
5. Extras.		

CLASS XL.—FOREIGN AGRICULTURAL IMPLEMENTS.

Foreign manufactured implements will be admitted for exhibition only; but diplomas will be awarded to those of particular merit.

DEPARTMENT SECOND.

ARTS, MANUFACTURES, LADIES' WORK, &c. &c.

Medals will be distributed amongst the several classes in this department, in addition to the money prizes, as follows :—

2 Gold Medals, value..... $40.00 each.
2 " " ..... 30.00 "
8 Silver Medals.

CLASS XLI.—ARCHITECTURAL AND MISCELLANEOUS USEFUL ARTS.

Sect.		$ c.
1. Best Architectural Drawing,		6 00
2d	do	4 00
2. Best Architectural Drawing, perspective,		6 00
2d	do	4 00
3. Best drawing of natural foliage (Canadian) applicable to Architectural details		8 00
2d	do	5 00
4. Best specimen of Modelling in plaster of natural foliage, (Canadian) applicable to Architectural details		8 00
2d	do	5 00
5. Best collection of Mathematical, Philosophical, and Surveyor's instruments,		8 00
2d	do	5 00
6. Best Surveyor's plans		6 00
2d	do	4 00
7. Best Stained glass		6 00
2d	do	4 00
8. Best Carving and Gilding		8 00
2d	do	4 00
9. Best Carving in Wood		8 00
2d	do	4 00
10. Best Carving in Stone		8 00
2d	do	4 00
11. Best monumental head-stone, (price and design considered)		6 00
2d	do	4 00
12. Best modelling in plaster,		8 00
2d	do	5 00
13. Best engraving on wood, (block with proof)		6 00
2d	do	4 00
14. Best engraving on copper		6 00
2d	do	4 00
15. Best engraving on steel		6 00
2d	do	4 00
16. Best seal engraving		6 00
2d	do	4 00
17. Best lithographic drawing		6 00
2d	do	4 00
18. Best lithographic drawing, colored		6 00
2d	do	3 00
19. Best lithographic drawing on Canadian stone		6 00
2d	do	4 00
20. Best geometrical drawing of engine or mill-wright work, colored		6 00
2d	do	4 00
21. Best drawing of machinery, perspective		6 00
2d	do	4 00
22. Best ornamental penmanship		4 00
2d	do	2 00
23. Best painting, imitation of woods and marbles,		6 00
2d	do	4 00
24. Best decorative house painting		6 00
2d	do	4 00
25. Best banner painting		6 00
2d	do	4 00
26. Best heraldic painting		6 00
2d	do	4 00
27. Best ornamented gilt picture frame		6 00
2d	do	4 00

Sect.	$ c.
28. Best plain gilt picture frame	4 00
2d do	3 00
29. Best specimen of dentistry	6 00
2d do	4 00
30. Best specimen of goldsmith's work	6 00
2d do	4 00
31. Best specimen of silversmith's work.	6 00
2d do	4 00
32. Best specimen of electrotyping	4 00
2d do	3 00
33. Extra entries.	

CLASS XLII.—CABINET WARE AND OTHER WOOD MANUFACTURES, &C.

1. Best centre table	6 00
2d do	4 00
2. Best drawing room sofa	8 00
2d do	5 00
3. Best set of drawing room chairs	8 00
2d do	5 00
4. Best ottoman	3 00
2d do	2 00
5. Best dining table	5 00
2d do	3 00
6. Best set of dining room chairs	5 00
2d do	3 00
7. Best side-board	6 00
2d do	4 00
8. Best bedstead	4 00
2d do	3 00
9. Best wardrobe	4 00
2d do	3 00
10. Best school desk and chairs, (price considered)	4 00
2d do	2 00
11. Best specimen of cooper's work	3 00
2d do	2 00
12. Best three wash-tubs	2 00
2d do	1 00
13. Best three wooden pails	2 00
2d do	1 00
14. Best three flour barrels	3 00
2d do	2 00
15. Best collection of cooper's work	5 00
2d do	3 00
16. Best door, 4 or 6 pannelled	3 00
2d do	2 00
17. Best window sash, hung in frame, 12 lights	4 00
2d do	2 00
18. Best specimen of joiner's work	4 00
2d do	3 00
19. Best 100 feet of machine wrought moulding	3 00
2d do	2 00
20. Best 100 feet of machine wrought flooring	4 00
2d do	3 00
21. Best picture frame, veneered	6 00
2d do	4 00
22. Best veneers from Canadian woods	6 00
2d do	4 00
23. Best collection of handles for tools, for carpenters, framers, blacksmiths, gunsmiths, watchmakers, &c.	10 00
2d do	5 00
24. Best 2 bundles of split shingles	3 00
2d do	2 00
25. Best collection of specimens of Turning in wood	6 00
2d do	4 00
26. Best 12 turned broom handles	2 00
27. Best 6 corn brooms	2 00
Be. Best board rule	2 00
29. Best 10 lbs. curled hair	3 00
2d do	2 00
30. Best spinning wheel	2 00
2d do	1 00
31. Best 6 zinc covered wash boards	3 00
2d do	2 00
32. Best 6 specimens of willow ware	3 00
2d do	2 00

SPECIAL.

33. Best set of drawing room furniture	20 00
34. Best set of dining room "	15 00
35. Best set of bed room "	10 00
36. Best Canadian woods suitable for the purposes of wood engravers, block engraved, with proof	15 00
37. Best veneered work, green Canadian woods	10 00
38. Extra entries.	

CLASS XLIII.—CARRIAGES, SLEIGHS, &C.

1. Best axle, wrought iron	3 00
2d do	2 00
2. Best bent shafts, half dozen	3 00
2d do	2 00
3. Best buggy, double seated	6 00
2d do	4 00
4. Best buggy, single seated	5 00
2d do	3 00
5. Best carriage, two horse pleasure	10 00
2d do	6 00
6. Best carriage, one horse pleasure	8 00
2d do	5 00
7. Best carriage, Childs' (price considered	3 00
2d do	2 00
8. Best dog cart, single	5 00
2d do	3 00
9. Best two pair of carriage hubs	3 00
2d do	2 00
10. Best carriage rims or felloes	3 00
2d do	2 00
11. Best dozen machine made carriage spokes	3 00
2d do	2 00
12. Best Sleigh, two horse pleasure	8 00
2d do	5 00
13. Best sleigh, one horse pleasure	6 00
2d do	4 00
14. Best pair of steel carriage springs	3 90
2d do	2 00
15. Best pair of carriage wheels, (unpainted)	4 00
2d do	3 00
16. Extra entries.	

CLASS XLIV.—FURS, AND WEARING APPAREL.

1. Best business coat	4 00
2d do	3 00

Sect.	$ c.
2. Best fur cap	3 00
2d do	2 00
3. Best fur gloves, mits or gauntlets	3 00
2d do	2 00
4. Best fur sleigh robe	4 09
2d do	3 00
5. Best gloves and mits, buckskin	2 00
2d do	1 00
6. Best gloves and mits, of any other leather	2 00
2d do	1 00
7. Best gloves and mits, lined with wool	2 00
2d do	1 00
8. Best over coat	4 00
2d do	3 00
9. Best pantaloons	3 00
2d do	2 00
10. Best silk hat	3 00
2d do	2 00
SPECIAL.	
11. Best assortment of prepared furs of the wild animals of Canada	20 00
12. Extra entries.	

CLASS XLV.—FINE ARTS.

Professional List—Oil.

1. Best Animals, (grouped or single)	12 00
2d do	6 00
2. Best historical painting, Canadian subject	12 00
2d do	6 00
3. Best landscape, Canadian subject	12 00
2d do	6 00
4. Best marine painting, Canadian subject	12 00
2d do	6 00
5. Best other original composition	12 00
2d do	6 00
6. Best portrait	10 00
2d do	6 00

In Water Colors.

7. Best animals, (grouped or single)	8 00
2d do	5 00
8. Best flowers, (grouped or single)	5 00
2d do	3 00
9. Best landscape, Canadian subject	8 00
2d do	5 00
10. Best marine view, Canadian subject.	8 00
2d do	5 00
11. Best miniature	6 00
2d do	4 00
12. Best other original composition	8 00
2d do	5 00
13. Best portrait	6 00
2d do	4 00

Pencil, Crayon, &c.

14. Best colored crayon	5 00
2d do	3 00
15. Best crayon drawing	5 00
2d do	3 00
16. Best pencil drawing	5 00
2d do	3 00
17. Best pen and ink sketch	5 00
2d do	3 00
18. Best pencil portrait	5 00
2d do	3 00
19. Best crayon portrait	5 00
2d do	3 00

Amateur List—Oil.

20. Best animals (grouped or single)	8 00
2d do	5 00
21. Best historical painting, Canadian subject	8 00
2d do	5 00
22. Best landscape, Canadian subject	8 00
2d do	5 00
23. Best marine painting, Canadian subject	5 00
2d do	3 00
24. Best portrait	5 00
2d do	3 00

In Water Colors.

25. Best animals, (grouped or single)	6 00
2d do	4 00
26. Best flowers	4 00
2d do	3 00
27. Best landscape, Canadian subject	6 00
2d do	4 00
28. Best marine view, Canadian subject.	6 00
2d do	4 00
29. Best miniature	5 00
2d do	3 00
30. Best portrait	5 00
2d do	3 00

Pencil, Crayon, &c.

31. Best colored crayon	4 00
2d do	3 00
32. Best crayon drawing	4 00
2d do	3 00
33. Best pencil drawing	4 00
2d do	3 00
34. Best pen and ink sketch	4 00
2d do	3 00
35. Best pencil portrait	4 00
2d do	3 00
36. Best crayon portrait	4 00
2d do	3 00

Photography.

37. Best collection of ambrotypes	6 00
2d do	4 00
38. Best collection of plain photograps	6 00
2d do	4 00
39. Best collection of colored photographs	6 00
2d do	4 00
40. Best photograph portrait in oil	6 00
2d do	4 00
41. Extra entries.	

CLASS XLVI.—GROCERIES, PROVISIONS, OILS, &C.

1. Best barley, pot and pearl	3 00
2d do	2 00
2. Best collection of biscuits	4 00
2d do	2 00
3. Best shoe blacking	2 00
2d do	1 00
4. Best collection of bottled fruits	3 00
2d do	2 00

Sect.	$	c.
5. Best collection of bottled pickles...	3	00
2d do	2	00
6. Best buckwheat flour, samples of ...	3	00
2d do	2	00
7. Best collection of candles.....	3	00
2d do	2	00
8. Best Cayenne pepper, one jar, (from capsicums grown in the Province)	2	00
2d do	1	00
9. Best 20 lbs. of Chicory.....	4	00
2d do	2	00
10. Best collection of confectionery.....	5	00
2d do	3	00
11. Best sample of wheat flour	6	00
2d do	4	00
12. Best glue, 14 lbs	4	00
2d do	2	00
13. Best indian corn meal.....	3	00
2d do	2	00
14. Best isinglass	2	00
2d do.....	1	00
15. Best collection of Medicinal herbs, roots and plants, native growth	8	00
2d do	4	00
16. Best jar of Mustard	3	00
2d do	2	00
17. Best sample of Oatmeal	3	00
2d do	2	00
18. Best oils extracted from plants.....	3	00
2d do	2	00
19. Best oils, linseed and rape	3	00
2d do	2	00
20. Best oil, coal or shale.....	3	00
2d do	2	00
21. Best preserves, 6 kinds..	3	00
2d do	2	00
22. Best can of preserved meats	3	00
2d do	2	00
23. Best collection of sauces for table use	3	00
2d do	2	00
24. Best soap, box of 28 lbs	3	00
2d do	2	00
25. Best collection of assorted soaps....	5	00
2d do	3	00
26. Best corn starch, 12 lbs	3	00
27. Best flour starch, 12 lbs	3	00
28. Best potato starch, 12 lbs	3	00
29. Best beet root sugar, 20 lbs	4	00
30. Best corn stalk sugar, 20 lbs.....	4	00
31. Best Maple sugar, 20 lbs	4	00
32. Best refined sugar, one loaf..... ...	4	00
2d do	2	00
33. Best tobacco, 14 lbs of Canadian manufacture	4	00
2d do	2	00
SPECIAL.		
34. Best collection of dyeing or coloring substances, the products of Canada	15	00
35. Extra entries.		
CLASS XLVII.—INDIAN PRIZES.		
1. Best fruit basket.....	2	00
2d do	1	00
2. Best clothes basket	2	00
2d do	1	00
3. Best hand basket	2	00
2d do	1	00
4. Best pair of buckskin mittens.....	2	00
2d do	1	00
5. Best bark canoe	4	00
2d do	2	00
6. Best indian cradle	3	00
2d do	2	00
7. Best dressed deer skin	2	00
2d do	1	00
8. Best pair of Moccasins, (plain).....	2	00
2d do	1	00
9. Best pair of moccasins worked with porcupine quills, ...	3	00
2d do	2	00
10. Best pair of moccasins, worked with beads	3	00
2d do	2	00
11. Best 4 paddles ,.....	3	00
2d do	2	00
12. Bset pipe of peace	3	00
2d do	2	00
13. Best pipe of war.....	3	00
2d do	2	00
14. Best sample of rice, 14 lbs.....	3	00
2d do	2	00
15. Best pair of snow shoes—common size.....	3	00
2d do	2	00
16. Best pair of snow shoes, eight inches long.....	2	00
2d do	1	00
17. Best sample of sugar, 14 lbs	3	00
2d do	2	00
18. Best Tobacco pouch, worked with porcupine puills	1	00
19. Extras.		
CLASS XLVIII.—LADIES' DEPARTMENT.		
1. Best Bonnet of Canadian straw.....	4	00
2d do.....	3	00
2. Best specimen of Braiding.....	4	00
2d do.....	3	00
3. Best specimen of Crochet work....	4	00
2d do.....	3	00
4. Best specimen of Embroidery in muslin.....	4	00
2d do.....	3	00
5. Best specimen of Embroidery in silk	4	00
2d do.....	3	00
6. Best specimen of Embroidery in Worsted.....	4	00
2d do.....	3	00
7. Best three pairs of Gloves	3	00
2d do.....	2	00
8. Best specimen of Guipure work.....	4	00
2d do.....	3	00
9. Best Hat of Canadian straw	4	00
2d do.....	3	00
10. Best specimen of fancy knitting....	4	00
2d do.....	3	00
11. Best specimen of lace work	4	00
2d do.....	3	00
12. Best 3 pairs of woollen mittens.....	3	00
2d do.....	2	00
13. Best specimen of ornamental needle work.....	5	00
2d do.....	3	00

Sect.	$	c.
14. Best specimen of fancy netting	4	00
2d do	3	00
15. Best specimen of quilts in crochet	4	00
2d do	3	00
16. do do in knitting.	4	00
2d do	3	00
17. do do in silk	4	00
2d do	3	00
18. do do in piece work	4	00
2d do	3	00
19. Best specimen of gentlemen's shirts	3	00
2d do	2	00
20. Best 3 pairs of woollen socks	3	00
2d do	2	00
21. Best 2 pairs of woollen stockings	3	00
2d do	2	00
22. Best specimen of tatting	4	00
2d do	3	00
23. Best specimen of wax fruit	6	00
2d do	4	00
24. Best specimen of wax flowers	6	00
2d do	4	00
25. Best specimen of worsted work	4	00
2d do	3	00
26. Best specimen of worsted work (raised)	4	00
2d do	3	00
27. Extra Entries.		

CLASS XLIX.—MACHINERY, MODELS, CASTINGS, TOOLS, &c.

1. Best Iron Castings for general Machinery	6	00
2d do	4	00
2. Best cast wheel, spur or bevel, not less than 50 lbs. weight	4	00
2d do	3	00
3. Best Fire Engine	15	00
2d do	10	00
4. Best model in metal, of engine, millwright's work, or machinery	8	00
2d do	5	00
5. Best steam engine, in operation on the ground	40	00
6. Best steam engine, 4 to 6 horse-power, portable, (open to Foreign competition	30	00
7. Best turning lathe	8	00
8. Best specimen of valves and gearing for working steam expansively, either in model or otherwise, (principle of working to be the point of competition)	12	00
9. Best model of a car truck worked to a scale	6	00
10. Best two cast jaws and boxes for cars	4	00
11. Best two composition boxes for cars	4	00
12. Best largest assortment of car castings	10	00
2d do	5	00
13. Best locomotive truck wheels, accompanied with specimens of the metal, chilled and shewing the fracture	6	00
2d do	4	00
14. Best passenger car wheels, do do	6	00
2d do	4	00
15. Best cooking stove, with furniture	5	00
2d do	3	00
16. Best cooking stove for coal, with furniture	5	00
2d do	3	00
17. Best hall stove for coal	4	00
2d do	2	00
18. Best hall stove for wood	4	00
2d do	2	00
19. Best kitchen range for coal	6	00
2d do	3	00
20. Best parlor stove for coal	4	00
2d do	2	00
21. Best parlor stove for wood	4	00
2d do	2	00
22. Best parlor grate	5	00
2d do	3	00
23. Best augers, from ½ to 2 inches	2	00
2d do	1	00
24. Best earth auger	2	00
2d do	1	00
25. Best six narrow axes	4	00
2d do	3	00
26. Best set of brace bits	2	00
2d do	1	00
27. Best set of bench planes	3	00
2d do	2	00
28. Best collection of moulding planes and plows	3	00
2d do	2	00
29. Best blacksmith's bellows	3	00
2d do	2	00
30. Best set of cooper's tools	3	00
2d do	2	00
31. Best assortment of edge tools	12	00
2d do	8	00
32. Best collection of hammers	3	00
2d do	2	00
33. Best specimens of weaver's reeds	2	00
2d do	1	00
34. Best metal pump	4	00
2d do	2	00
35. Best platform scales	4	00
2d do	2	00
36. Best counter scales	3	00
2d do	2	00

SPECIAL.

37. Best engine in operation on the ground, being new application of motive power, or application of new motive power	30	00
38. Best newspaper addressing machine, in operation	15	00
39. Best smoke consuming furnace, in operation	20	00
40. Best barrel making machine, in operation	10	00
41. Best cut nail making machine	10	00
42. Best pressed nail making machine	10	00
43. Best model with explanations of system for warming and ventilation of buildings	15	00
44. Extra Entries.		

CLASS L.—METAL WORK, PLAIN & ORNAMENTAL.

1. Best specimen of coppersmith's work	5	00

Sect.		$ c.
	2d do	3 00
2.	Best specimen of sheet brass work	5 00
	2d do	3 00
3.	Best specimen of tinsmith's work	5 00
	2d do	3 00
4.	Best specimen of plumber's work	5 00
	2d do	3 00
5.	Best specimen of locksmith's work	5 00
	2d do	3 00
6.	Best collection of gas fittings	8 00
	2d do	3 00
7.	Best 6 coal oil lamps	5 00
	2d do	3 00
8.	Best iron bedstead	3 00
	2d do	2 00
9.	Best collection of firearms	8 00
	2d do	4 00
10.	Best collection of cast steel files	3 00
	2d do	2 00
11.	Best specimen of finishing in iron, (vice work)	3 00
	2d do	2 00
12.	Best set of horse shoes	3 00
	2d do	2 00
13.	Best iron fencing and gate, ornamental	8 00
	2d do	4 00
14.	Best iron work from the hammer, ornamental	5 00
	2d do	3 00
15.	Best cast iron work, ornamental	5 00
	2d do	3 00
16.	Best specimen of turning in iron	5 00
	2d do	3 00
17.	Best iron fire proof safe door, (price considered)	5 00
	2d do	3 00
18.	Best iron fire proof vault door, (price considered)	5 00
	2d do	3 00
19.	Best malleable iron from the ore	6 00
20.	Best malleable iron from scrap iron	6 00
21.	Best Pressed Nails, 20 lbs	5 00
	2d do	3 00
22.	Best Cut nails 20 lbs	5 00
	2d do	3 00
23.	Best assortment of screws and bolts	6 00
	2d do	4 00
24.	Best specimen of wire ropes	4 00
	2d do	2 00
25.	Best collection of wire work	6 00
	2d do	4 00
26.	Best ornamental fencings or surroundings for burial plots in cemeteries, (price considered)	6 00
	2d do	4 00
27.	Best designed model of a fountain	5 00
	2d do	3 00
28.	Best model of a street hydrant	4 00
	2d do	2 00
29.	Best refrigerator, (price considered)	4 00
	2d do	2 00
30.	Best assortment of ornamental cast iron work	15 00
31.	Best assortment of sheet metal work	15 00
32.	Extra entries.	

Sect.		$ c.
	CLASS LI.—MISCELLANEOUS.	
1.	Best assortment of brushes	5 00
	2d do	3 00
2.	Best assortment of combs	4 00
	2d do	3 00
3.	Best specimen of varnishes, Canadian made	4 00
	2d do	3 00
4.	Best model of a steam vessel	4 00
	2d do	3 00
5.	Best model of a sailing vessel	4 00
	2d do	3 00
6.	Best collection of manufactures from the raw products of the Province, (exhibited by the manufacturers, or any other person,) with specimens of the raw material.	
7.	Extra entries.	
	CLASS LII.—MUSICAL INSTRUMENTS.	
1.	Best harmoniums	10 00
	2d do	6 00
2.	Best melodeon	6 00
	2d do	4 00
3.	Best square Piano	15 00
	2d do	10 00
3.	Best cottage piano	15 00
	2d do	10 00
5.	Best violin	3 00
	2d do	2 00
	SPECIAL.	
6.	Best church organ	20 00
7.	Best collection of musical instruments	25 00
8.	Extra entries.	
	CLASS LIII.—NATURAL HISTORY.	
1.	Best collection of stuffed birds and animals, of any country	25 00
	SPECIAL.	
2.	Best collection of stuffed mammalia of Canada, classified, and common and technical names attached	40 00
3.	Best typical collection of stuffed birds of Canada, classified, and common and technical names attached	40 00
4.	Best collection of reptiles of Canada, (stuffed or preserved in spirits,) classified, and common and technical names attached	40 00
5.*	Best collection of live fishes, with names furnished	40 00
6.	Best collection of native fishes, (stuffed or preserved in spirits) with common and technical names attached	40 00
7.	Best collection of native insects, classified, and common and technical names attached	40 00
8.	Best collection of mineral of Canada	40 00
9.	Best collection of the woods of Canada, cut in sections and showing the bark	30 00
10.	Best collection of the woods of Canada, in plank or boards, 3 feet long, one-half the length to be polished.	30 00
11.	Extra entries.	

* Tanks will be built for the purpose, and supplied with Lake water, constantly changing.

Sect.	$ c.
CLASS LIV.—PAPER, PRINTING, BOOKBINDING, &c.	
1. Best specimen of blank book bookbinding	5 00
2d do	3 00
2. Best specimen of ornamental letter-press bookbinding	5 00
2d do	3 00
3. Best specimen of cartridge paper	2 00
4. Best specimen of printing ink	2 00
5. Best specimen of writing ink	2 00
6. Best specimen of plain letter-press printing	5 00
2d do	3 00
7. Best specimen of ornamental letter-press printing	5 00
2d do	3 00
8. Best ream of printing paper	5 00
2d do	3 00
9. Best doz. rolls of paper hangings, grounded, (on Canadian paper)	6 00
10. Best doz. rolls of paper hangings, self-grounded, (on Canadian paper)	4 00
11. Best specimen of printing type	6 00
12. Best ream of writing paper	5 00
2d do	3 00
13. Best and cheapest ream of wrapping paper	4 00
2d do	3 00
14. Best specimen of stout wrapping paper	3 00
2d do	2 00
15. Best specimen of fine wrapping paper	3 00
2d do	2 00
16. Best assortment of paper manufactured from straw	6 00
2d do	4 00
17. Extra Entries.	
CLASS LV.—POTTERY.	
1. Best specimen of Draining pipes (ordinary kind) different sizes	6 00
2d do	4 00
2. Best six specimens of different sized sewerage pipes, stone ware	6 00
2d do	4 00
3. Best water filterer	3 00
2d do	2 00
4. Best assortment of pottery	8 00
2d do	4 00
5. Best assortment of stoneware	8 00
2d do	4 00
6. Best fire-proof roofing tiles	5 00
2d do	3 00
SPECIAL.	
7. Best collection of Canadian building and flagging stones	20 00
8. Best collection of the various clays of the Province adapted to the manufacture of pottery, tiles, and stoneware, with specimens of articles manufactured therefrom	25 00
9. Best dozen hollow bricks for building purposes	10 00
10. Extra Entries.	
CLASS LVI.—WOOLLEN, FLAX, AND COTTON GOODS.	
1. Best set of double carriage harness	7 00
2d do	5 00
2. Best set of single carriage harness	6 00
2d do	4 00
3. Best set of team harness	5 00
2d do	3 00
4. Best set of cart harness	4 00
2d do	2 00
5. Best 6 assorted carriage and team horse collars	4 00
2d do	3 00
6. Best 50 feet of copper rivetted engine hose and joints, (2¾ inch diameter)	6 00
2d do	4 00
7. Best lady's saddle	6 00
2d do	4 00
8. Best gentleman's saddle	6 00
2d do	4 00
9. Best solid leather trunk,	6 00
2d do	4 00
10. Best leather covered trunk(millboard)	6 00
2d do	4 00
11. Best leather covered trunk, (wood)	4 00
2d do	3 00
12. Best assorted collection of whips	6 00
2d do	4 00
13. Best assortment of whipthongs	3 00
2d do	2 00
14. Best 4 pairs of iron carriage or gig hames	5 00
2d do	3 00
15. Best 3 pairs of iron cased team or cart hames	5 0
2d do	3 00
16. Best 6 pairs of wooden team hames	5 00
2d do	3 00
17. Best assorted collection of hames	6 00
2d do	4 00
18. Best patent collar block	4 00
2d do	3 00
19. Best saddler's sewing horse	4 00
2d do	3 00
20. Best lady's saddle tree	4 00
2d do	2 00
21. Best gentleman's saddle tree	4 00
2d do	2 00
22. Best cart saddle tree	2 00
2d do	1 00
23. Best 30 lbs. of belt leather	4 00
2d do	2 00
24. Best 3 sides of brown strap	4 00
2d do	2 00
25. Best 3 sides of brown bridle	4 00
2d do	2 00
26. Best assortment of bookbinder's leather	6 00
2d do	4 00
27. Best 2 skins of leather for carriage covers	4 00
2d do	2 00
28. Best dressed deer skin	2 00
2d do	1 00
29. Best 3 sides of harness leather	4 00
2d do	2 00
30. Best three hog skins for saddles	6 00
2d do	4 00
31. Best hide of lacing leather	2 00
2d do	1 00

Sect.	$	c.
32. Best patent leather for carriage or harness work, 20 feet	6	00
2d do	4	00
33. Best 3 sides of skirting for saddles	5	00
2d do	3	00
34. Extra entries.		

CLASS LVII.—SHOE AND BOOT DEPARTMENT.

1. Best pair of lady's Balmoral boots	3	00
2d do	2	00
2. Best pair of lady's cloth boots	3	00
2d do	2	00
3. Best pair of lady's kid slippers	2	00
2d do	1	00
4. Best pair of gentleman's lace boots (sewed)	4	00
2d do	3	00
5. Best pair of gentleman's lace boots (pegged)	3	00
2d do	2	00
6. Best pair of Wellington boots(sewed)	4	00
2d do	3	00
7. Best assortment of boot and shoe-makers' work	6	00
2d do	4	00
8. Best assortment of boot and shoe-makers' tools	6	00
2d do	4	00
9. Best assortment of boot and shoe makers' lasts and trees	6	00
2d do	4	00
10. Best assortment of shoe pegs	3	00
2d do	2	00
11. Best assortment of Indian rubber goods	6	00
2d do	4	00
12. Best 3 morocco calf skins	4	00
2d do	2	00
13. Best three calf skins	4	00
2d do	2	00
14. Best 3 skins of cordovan	4	00
2d do	2	00
15. Best 3 dressed dog skins	4	00
2d do	2	00
16. Best 3 sides of kip skin	4	00
2d do	2	00
17. Best 6 skins of linings	4	00
2d do	2	00
18. Best 20 feet of patent leather for bootmakers	6	00
2d do	4	00
19. Best 6 colored sheep skins	4	00
2d do	2	00
20. Best 3 sides of sole leather	4	00
2d do	2	00
21. Best 3 sides of upper leather	4	00
2d do	2	00
22. Extra entries.		

CLASS LVIII.—SADDLERY DEPARTMENT.

1. Best 12 bags, manufactured from flax the growth of Canada,	5	00
2d do	3	00
2. Best 12 cotton bags	4	00
2d do	2	00
3. Best pair of woollen blankets	8	00
2d do	6	00
4. Best 12 yards woollen carpet	8	00
2d do	6	00
5. Best 12 yards woollen stair carpet	6	00
6. Best 12 yards fulled cloth	6	00
2d do	4	00
7. Best piece of woollen Canadian cloth,	8	00
2d do	5	00
8. Best two counterpanes	5	00
2d do	3	00
9. Best 28 lbs of flax or hemp cordage	6	00
2d do	4	00
10. Best pair of woollen factory drawers	4	00
2d do	3	00
11. Best 12 yards of flannel, factory made	6	00
2d do	4	00
12. Best 12 yards of flannel, not factory made	5	00
2d do	3	00
13. Best 2 pairs of horse blankets	5	00
2d do	3	00
14. Best 12 yards of Kersey for horse clothing	6	00
2d do	4	00
15. Best 12 yards of check for Horse collars	5	00
2d do	3	00
16. Best piece of linen goods	5	00
2d do	3	00
17. Best 12 yards of oil cloth	4	00
2d do	3	00
18. Best 12 yards of satinet	6	00
2d do	4	00
19. Best 3 shawls	5	00
2d do	3	00
20. Best 6 woollen shirts, factory made	5	00
2d do	3	00
21. Best 3 pairs of knitted woollen stockings, factory made	4	00
22. Best 3 pairs of knitted woollen socks, factory made	2	00
23. Best 3 pairs of mixed woollen and cotton stockings, factory made	4	00
24. Best 3 pairs of mixed woollen and cotton socks, factory made	2	00
25. Best 12 yards of winter tweed	6	00
2d do	4	00
26. Best samples of twines, linen and cotton	3	00
27. Best 12 yards of checked Minsey	5	00
2d do	3	00
28. Best 1 lb of white woollen yarn	2	00
29. Best 1 lb of dyed woollen yarn,	2	00

SPECIAL.

30. Best collection of the Fibres of the Province, adapted to manufactures with information as to cost, &c.	20	00
31. Best assortment of woollen manufactures	20	00
32. Best assortment of Guernsey shirts, shawls, stockings, socks, drawers, and mits	20	00
33. Best assortment of cordage and twines from Canadian flax or hemp	15	00
30. Extra Entries.		

CLASS LIX.—FOREIGN MANUFACTURES.

Foreign articles will be admitted for Exhibition only; but certificates will be awarded to any articles of worth or peculiar merit.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, AUGUST 1, 1860. No. 15.

August.

The earlier part of this month will be occupied with the finishing of harvesting operations. At the present date probably the greater part of the fall wheat in the country has been secured. It is gratifying to find that as additional intelligence is received of the progress of harvesting that the anticipations of the bountiful character of the yield are nearly every where confirmed. The weather has been exceedingly favorable for the work of the season, so that we have reason to believe not only that the crops of all kinds will be good, but that they will be got into the barns and stacks in very fine condition. We are glad also to find by late arrivals from Europe that the character of the season there had much improved, and that although an average crop can now scarcely be anticipated, it will yet probably be much better than could have been heretofore hoped for.

Besides the harvesting operations the most important business of this month will consist in the preparation of land for fall wheat, preparatory to sowing, at the end of the month, or beginning of September. The result of the past two seasons has done much to dispel the direful apprehensions that our farmers were led to entertain, from the reports from other quarters, of the resistless ravages of the wheat fly. Either the cultivation of our farms in this portion of Western Canada, is cleaner and better than in those districts where the fly has heretofore so completely destroyed the crop, and where in many cases it was the practice to sow wheat year after year on the same land, so that the insect is not propagated here so rapidly; or the favorable character of our soil and climate enables us by sowing early to get ahead of the midge, better than they could do in those sections; or, again, the past two seasons have been peculiarly favorable for outmanœuvering the midge, and we have not yet seen the worst of it, but will learn to our cost hereafter what it is capable of doing. We do not wish by any means to lead any of our readers into the mistake of treating the insect with contempt, and sowing wheat as recklessly as heretofore; but we confess to entertaining the opinion, that with due attention to the requisite conditions of soil, to a proper system of cultivation and rotation of crops, and to other necessary precautions and requirements, fair crops of fall wheat may still be obtained, notwithstanding the prevalence of the midge. The chief conditions requisite are, that the land should be fertile and in good heart, that it should be of a dry and porous character naturally, or artificially as well drained as circumstances will permit, and that the wheat should be sown early, and be of an early ripening variety. We admit that in the Newcastle district, where there are some of the best Canadian farmers, and where the midge appeared several years earlier than in the counties adjoining and west of Toronto, they were obliged to give up sowing fall wheat almost altogether, and resort to the kinds of spring wheat which will bear sowing late. But we are not aware that the farmers in that district were

impressed particularly with the importance of sowing early, and early varieties of seed, as a means of escaping the depredations of the insect. Had they been, we are of opinion that they would not have been compelled to abandon fall wheat culture so entirely as they did. In fact, the idea of sowing very early ripening varieties, and the mode of obtaining them, viz.: by bringing seed from the South, is comparatively recent. In New York State, in Genesee valley, and other wheat growing districts, though aware of the advantages of sowing early as a means of avoiding the midge, they were afraid of sowing too early, for fear of the autumn operations of the Hessian Fly. They were thus between two enemies, and the Genesee valley, so long famous for the excellence of its crops of wheat, was on the point of abandoning the culture of that grain. And here is another reason why we think that the comparatively better system of cultivation pursued by our farmers, as compared with that in some parts of the adjoining States and in Lower Canada, where these two insects have been so destructive, or some favorable peculiarity of our climate, may have something to do with the different results here. For although the Hessian Fly had been the means of almost entirely preventing the growth of wheat in some other places where it had appeared, we did not find that it committed very serious damages here, and after the first year or two the alarm in reference to it quite subsided. Be this as it may, however, since they have hit upon the expedient of getting early ripening varieties from the south, the farmers of Genesee valley have found, at least the experience of the past year or two goes to show, that they can sow late enough in the fall to escape much damage from the Hessian Fly, and yet have the grain come into bloom sufficiently early in spring to avoid also the other enemy.

There is still some difference of opinion upon the question as to whether wheat to ripen early should be brought from the North or the South, and many persons are quite surprised on hearing it said that it should be obtained from the latter direction. This is a very important point and should be established satisfactorily. Numerous facts support the opinion in favor of the South. Samples of the same variety brought from the South have ripened a week or ten days earlier, the first year, and brought from the North have ripened as much later than the crops grown from the native seed. The reason is, that the plant in the South acquires a habit of coming early to maturity, and this constitutional tendency adheres to it, for some time, notwithstanding the change of location, but gradually loses force, and after a few years the variety becomes naturalized, and ripens at the same time as the other native varieties.

The proper preparation of the land previous to sowing, will consist in keeping down weeds and stirring the soil, by the use of the plough, cultivator, or harrow, drawing out the manure, &c. The amount of cultivation to be given, and whether it should be deep or shallow, will depend very much upon the nature of the soil, and upon the cultivation it has already received during the season. On strong loamy clays, or stiff clays, there is no preparation for wheat so much to be depended upon as the thorough summer fallow. Such land should receive at least one, if not two pretty deep ploughings during the season, so as to bring up the subsoil, and expose it to the fertilizing influences of the atmosphere, and thus to give the plant plenty of depth for the roots, and to facilitate drainage. After two such ploughings the remainder of the cultivation may consist in stirring the surface with a light plough or gang of ploughs or cultivator, and working in the manure, if any is applied, till the time for ridging for the seed arrives. Such soils may also produce a fair crop of wheat, if ploughed up from sod the previous autumn or spring, and sown thickly with peas for an intervening crop. If the peas can be got off about the 1st of August, there would be an advantage in ploughing the land as soon as possible afterwards, to prevent the danger of baking in case of very dry weather, and it would then keep in good condition for ridging at seed time. In case of sowing wheat after peas, a light manuring will be more necessary than after the thorough fallow, though in either case this will depend upon the condition of the land as to fertility, and the previous course of cropping. The manure should be previously decomposed by turning into heaps, or by composting, in order to ensure the destruction of weed seeds, and covered in with a light surface ploughing previous to drilling or ploughing in the seed.

In soils of a lighter character than those described, that is of a more loamy or porous cha-

racter, the thorough summer fallow is not so requisite, except in case of the land being foul with weeds. Such land may be ploughed up after taking a crop of clover, or from pasture, in July, and be got in good order for sowing by 1st September; or the ploughing may even be left till just before sowing, and by the use of the land presser the edges of the furrows pressed down to prevent the grass springing up, and a good bed made for the seed, where it would be well covered by the harrow. If such land is in good heart, and has been well manured for the clover, a good crop of wheat may be obtained without further manure. Or such clover ley may be sown to peas in spring, and got into good condition for wheat with a single ploughing afterwards. In the latter case, or in case of any other summer crop having been taken, a light dressing of manure would be advisable. For a short fallow from clover ley on a loamy soil, the Oshawa Manufacturing Company's Skim Coulter Plough is a capital implement. It buries the sod completely from the light and air, and secures its thorough decomposition in much less time than is done by the ordinary plough.

Editorial Correspondence.

[No. 3.]

THE GREAT NATIONAL AND AGRICULTURAL EXHIBITION OF FRANCE.

PARIS, June 23rd, 1860.

This immense display of the agricultural productions of France and her colonies has been open for the inspection of the public during the present week, and will close to-morrow, (Sunday) when free admission will be granted to all who may be desirous of entering these truly beautiful and extensive grounds. Hitherto the charge for admission has been a franc, (about a fifth of a dollar,) and it is said from forty to fifty thousand have each day entered the enclosure, besides large numbers having a right of free ingress. It is impossible in the hurry of the moment, and within the limits of an ordinary communication to convey to our readers any adequate idea of this great gathering; I must be content to state a few of the more prominent facts which came under my own observation.

This Exhibition is purely French; all the live stock having been bred in this country, and the cereal and other productions representing the capabilities of the different soils and climates of France are all of native growth. The only exception I could learn relates to the department of implements and machines, in which there are several specimens of some half dozen of the most eminent British manufacturers. A similar exhibition to the present, but on a much smaller scale, was held in this metropolis in 1855, but it attracted comparatively little attention either in town or country. In the following year an extensive international exhibition was held, in which the live stock and agricultural productions of the British Islands occupied a prominent position; and it would appear, that the unfavorable contrast thereby produced, aroused the energy of the French people, and gave a new impulse to their agriculture, the fruits of which are so pleasingly apparent in the present exhibition.

In regard to completeness of arrangements, cleanliness, beauty of appearance, and other such adjuncts, this show vastly exceeds any thing that I have ever seen, or even imagined. The space occupied comprises several acres of the most beautifully ornamented grounds attached to those of the Tuilleries, which constitute such an attractive and lovely feature of this really splendid city. In the Palace of Industry, a noble permanent structure, in which the former World's Exhibition was held, the cattle are most conveniently arranged according to their respective breeds, and the centre of the building consists of green sod, ornamental water, fountains, and a rustic bridge, with shrubs and collections of the choicest and most carefully cultivated flowers. Straw mats even are put for the cattle and horses to repose on, and the most sedulous attention is paid to cleanliness. The capacious galleries above are devoted to the reception of grains and the numerous productions of the soil, with the lighter and more highly finished tools and machines. Out of the Palace are two immense ranges of stalls for horses, with excellent arrangement for sheep, pigs, and poultry, and the larger kinds of agricultural implements and machinery, so truly characteristic of an advancing husbandry. In short nothing has been spared in the way of expense and artistic design and finish to make this great exposition of a nation's industry, as attractive to the eye as it is instructive to the mind. The French are unquestionably *au fait* in matters of this kind.

According to the Catalogue,—a huge volume of some 700 pages, for which I paid only a franc,—there are near 1500 entries of cattle. Of these 168 consist of pure Durhams; 146 crosses by a short horn bull; 30 other crosses by Ayrshires and others; 50 pure Ayrshires; and only 10 of Herefords, Devons, &c. Now although no English stock formed a part of the Exhibition, yet it was obvious enough to the most superficial observer, that the classes above enumerated were derived from British blood. The pure French breeds consist of 870 entries, in which the Norman and Bretonne greatly predominate. There are specimens of near twenty other native races, with which having no practical acquaintance, I can offer no decided opinions. In each class there are many excellent animals; well suited no doubt to the varied soils, climate, and markets of this great country. The pure British breeds being now fairly introduced are certainly destined to make progress; and there are many admirable specimens of the advantage of a cross between these, more particularly the Durhams, and the native French cows. The Norman race are fine and large, resembling in some respects the short horn, with which they form an admirable cross. It is probable that several of the French breeds would succeed in Canada, and make profitable animals: but experiments of this kind it would not be advisable to try on a large scale, while we can have unlimited recourse to the improved breeds of the British Islands. The Charolaise and Nivernaise cattle are compact and symmetrical, and evidently have good feeding properties, and their flesh, I am told, is of excellent quality. The show of Breton cattle is very large, and consists of numbers of beautiful little cows, black and white, much resembling some of the small breeds of Wales. Among the short horns may be seen a number of what even in England would be called good animals, and the same remark applies to Ayrshires. The Dutch breed, consisting of black and white, so admirably adapted to dairy purposes, are well represented. The Swiss breed, mostly of a dun color, appear to possess many good points; some of the bulls are of large size. The Emperor's cattle from the Imperial farms in the neighbourhood of Paris, occupied a distinct place; consisting of some good specimens of Shorthorns, and also, as far as I can judge, of Bretons, Normans, Swiss, &c.

The number of prizes awarded to horned cattle is 400; amounting in the aggregate to upwards of £6,000 sterling. Besides the money, each first prize has appropriated to it a Gold Medal; the second a Silver, and the third a Bronze one.

It is agreed on all hands that France is making considerable progress in sheep farming, both in long and short wools. The number of entries in this department is 546; and the total amount of sheep is not far short of 1300. In France wool is the principal object sought for, while in England the carcase is regarded as of primary importance, and it will usually exceed in weight that of France as to two one. The Merinos and Saxons are largely bred in France, and yield a fine, valuable wool; and it is estimated that at present one-fourth at least of all the sheep kept in this country consists of Merinos, either pure or mixed. I learnt from reliable sources that of late years the French have managed to increase the weight of the carcass without injuriously affecting the quality of the fleece, which of course has been proportionately increased in weight. The entries of the pure French Merino number 187, while the crosses amount to no less than 148. Some 30 entries of other native breeds are present, some of which appear inferior, though from want of practical knowledge respecting them, I can form but a very imperfect judgment. The foreign breeds are almost entirely English. In Leicesters there are 25 entries, with only a solitary specimen or two of Cotswolds and Lincolns. The short wools consist mainly of Downs; and nearly the whole of the cross breeds were got by English rams. Although the class of sheep is in many respects positively good there are a number of animals decidedly inferior, which should not have found a place in a *national* show; a remark that will apply to all the other departments of live stock. I have seen better specimens of the Leicesters at our Canadian Provincial Shows; and the Downs will not compare with such flocks as Jonas Webb's, Mr. Rigden's, the Duke of Richmond's, &c. It is evident, however, that the French are now experimenting in regard to sheep in an earnest and enlightened spirit, and that this department of husbandry is rapidly improving in that fine country and climate.

The Pigs are not numerous, only 240 entries,—but the qnality is decidedly good. Only 32 belong to the French breeds, some few of the

Norman and Ardennes appear to possess some valuable properties, but the majority are indifferent. The English breeds have redeemed this department of the Exhibition from decided inferiority.

The goats and rabbits deservedly attract attention, and the show of poultry, including pigeons, pheasants, peacocks, guinea fowls, &c., amounting to upwards of 800 cages, is a decided success. The dry character of the climate and the great demand for eggs are favourable to poultry keeping; and the numerous specimens of Cochins, Spanish, Bramahpootras, together with several native breeds, impart a high character to this department, which seems almost as attractive to gentlemen as to ladies.

I have almost forgotten the Horses, which constitute so prominent a feature of the exhibition. Till recently this useful animal, I understand, was not admitted into the French shows. On this occasion the horses amount to nearly a thousand, comprising all the distinctive breeds of the differnt Provinces of the country. The way in which the animals are housed and shown is admirable, securing the most perfect cleanliness and safety, and affording visitors the amplest opportunities of observation. The premiums offered in this class amount to upwards of £8,000 sterling. There are many animals of each breed that possess great merit, and a good selection for draught, the carriage, or the saddle, could very readily be made. A special class is provided for mules and asses, with premiums to the amount of £300; some of the males of the latter are of extraordinary size, and command high or rather fabulous prices. If I am correctly informed some of these stallions will fetch from one to three hundred pounds each; they are chiefly employed for the breeding of mules.

The Implement department is very extensive, comprising about 4,000 entries. Some of the old French ploughs and implements are really curiosities, and belong rather to the history of agricultural mechanics than to the great advances that have been made in modern times. In agricultural machinery France is yet far behind; her best tools and implements being in a great degree mere copies of English and American inventions. But no one could examine this immense collection without perceiving that a fresh impulse has recently been given in the direction of improvement, and the unwieldy wooden ploughs of the past, are beginning to make place for lighter and far more effective implements, chiefly constituted of iron. The very small farms, however, into which the country is cut up, must continue to operate against the introduction of machinery on an extensive scale.

I must here cease for the present. The hurry and noise incident to these occasions render it difficult for one to collect and communicate on paper his thoughts. I may have occasion to revert to matters connected with this country and exhibition in my next. G. B.

Pleuro-Pneumonia.

At a meeting of the Executive Committee of the New York State Agricultural Society, held on the 21st June last, Col. B. P. Johnson, Secretary, read a report of two visits he had made in the beginning of the month to Massachusetts (in the last of which he was accompanied by L. H. Tucker, Treasurer, and Professor Porter, Chemist to the Society), for the purpose of inquiring fully into all the facts connected with the cattle disease there prevailing, and to ascertain as far as practicable, the best probable means of arresting it. After glancing at the facts connected with the origin and progress of the present outbreak of the disease, which have been given pretty fully in late numbers of this journal, the report proceeds to recommend isolation of the diseased cattle, as a means of repelling the distemper, and expresses the opinion that with this means at hand there is no great occasion for the extensive panic which has prevailed on the subject. The report recommends that every precaution shall be taken to prevent the introduction of cattle from diseased localities into the State, and also expresses the belief that the means taken to repress the disease in Massachusetts will prevent its progress west of the Connecticut River in that State. Should this turn out to be the case we shall have much cause for thankfulness in this province, but in the mean time it is important that we should become fully acquainted with all the facts relating to the disease, so as to be prepared to act when necessary. The report says:—

From all we could learn we were led to believe, that if in the commencement or first appearance of the disease, the cattle affected and

those exposed are entirely *separated from others*, and *remain so*, under proper treatment, in clean, well-ventilated stables, or in pasture, until all symptoms of the disease are eradicated, or the animals slaughtered and buried, that the disease may be arrested, as it has been frequently in England, Australia, Europe, and in this country.

That the disease is contagious, and under certain circumstances infectious, seems from the evidence to be established. We have seen no evidence that the disease is propagated in any way but by contagion or infection. There are, however, those who believe differently; but in Massachusetts, where the disease has been most prevalent, we think the opinion is nearly universal, that the disease is contagious.

Admitting that *isolation* of the infected cattle will stop the spread of the disease, it seems probable, (that, if the Massachusett laws are promptly and rigidly enforced, as it is believed they will be,) the disease will not hereafter cross the Connecticut river. So far as we are able to learn, there is no satisfactory evidence before the Commissioners, of any animal diseased passing *west of the Connecticut River in Massachusetts*. We hope this may prove to be so, as it greatly lessens the probability of the disease reaching our State from that direction.

After the reading of the Report, and a full consideration of the facts embodied in it, the following resolutions were adopted by the Board:

Whereas, An unnecessary alarm is believed at present to prevail in relation to the probable spread of the Pleuro-Pneumonia now existing in Massachusetts; and whereas, other milder and more common complaints are likely to be mistaken for it; and whereas, the symptoms of the disease are not only distinctly marked, but very plainly pointed out in the Report received from the Committee of the Society, who have recently visited the infected districts; therefore

I. *Resolved*, that in view of the highly contagious character of the Pleuro-Pneumonia, the chief and perhaps the only safety for the farmer in case of suspicion, lies in the isolation of his cattle as completely as possible from all contact with each other and with those of his neighbors.

II. That by the adoption of this course there are within the reach of every farmer, the means of restraining the Pleuro-Pneumonia should it appear within the limits of his own herd; and that, for the information of the farmers of this State in regard to the disease, the Report be printed for general circulation.

III. That the President and Secretary be a committee to designate one or more persons practically conversant with the Pleuro-Pneumonia, who may be consulted in case of suspicion in any part of the State, at the expense of the parties applying for such assistance, to dispel the suspicion at once if it proves to be unfounded, and to recommend the proper precautions and remedies if any case of the disease in question should actually be found to exist.

IV. That we warmly appreciate the disinterested efforts made by the State of Massachusetts to prevent the extention of this disease to other States; and that the thanks of the New York State Agricultural Society are hereby returned to the authorities of that common-wealth, and that a copy of these resolutions be addressed by the Secretary to his Excellency the Governor of Massachusetts.

The Turkish Bath as a Cure for Lung Disease in Cattle.

We copy from the *Irish Farmer's Gazette* the following extracts from the report of a committee appointed recently by the Royal Agricultural Improvement Society of Ireland to inquire into the utility of the Turkish Bath in cases of cattle distemper. We noticed this subject briefly in our last, and consider it of sufficient interest and importance, particularly in view of the prevalence of Pleuro-Pneumonia in the adjoining States, to deserve some further space in our columns. The mode of treatment adopted is quite novel, and appears to be successful with other animals, as well as cattle, and for other forms of disease than lung distemper. We are of opinion however that some further experience is required, to test the benefits of the treatment satisfactorily to the public. We shall look for further reports on the subject. The following are the extracts from the report in the Gazette:

"On the morning of Friday, the 15th inst., we proceeded at an early hour to St. Ann's, Blarney, by appointment with Doctor Barter, who received us very kindly, and spared no pains or trouble to place us in possession of any details that we considered calculated to throw light on the subject of our inquiry. After having conducted us through the portion of the establishment appropriated to the use of his numerous patients, and briefly explained to us the principle and construction of the bath as used for the human subject, we proceeded to view his cattle bath, constructed in a range of buildings in his farm-yard, which we found to consist of two apartments, each about 15 feet square, opening one into the other, the inner one being the hot room or bath, and the outer a cooling room, where cold or tepid water can be thrown over the animal after coming out of the hot room, as will be presently more fully explained. The heating process applied to the inner room is very simple, and is nothing more than is in use in every hothouse; a small furnace being placed at the rear of the building, and the heat carried round three sides of the room by a brick

flue, care being taken to keep the flue raised off the ground by the use of large tiles bridged on bricks, so that the air of the apartment circulates round the flue, whereby a considerable saving of fuel is effected. The walls of this apartment are studded in the usual way, about an inch of clear space intervening between the laths and the outer wall, whereby the radiation of heat is prevented and fuel still further economised. A strong rail, about 3½ feet high, running round the interior portion of the apartment, to prevent the animals rubbing against or injuring the flue, completes the arrangements. There were no cattle or other animals under treatment at the time of our visit; but our attention was drawn to the following recent cases of disease, all of which had been successfully treated with the bath, and without the use of any medicine whatever.

Two dairy cows in full milk, about three months calved, had been attacked with lung distemper, one on the 27th and the other on the 29th of May last; neither were put under treatment until unmistakable signs of distemper had manifested themselves, in the rapid drying up of the milk and subsequent quick respiration. The use of the bath (two hours at a time) was ordered, at first three times, and when urgent symptoms were got under, twice a day; and under this treatment, at the end of the third day, a manifest improvement in the state of each was the result, and at the end of the seventh or eighth day the further use of the bath was considered unnecessary; and from this period the milk, which had all but entirely disappeared during the violence of the attack, rapidly returned; and at the time of our visit, being the 17th and 19th days respectively from the date of the first attack, we were assured by the man who regularly milked them that they were both in quite as good milk as they had been previous to their being attacked, and we had no difficulty in crediting this statement, as it would have been impossible to distinguish either, from any one of the 40 cows with which they were grazing, whether from the appearance of the udder or their general healthy character.

We had also pointed out to us the several cows that were treated successfully during the last winter and early spring for distemper in the bath, and they were all, without exception, in perfect health, and stated by the herd to be in as good profit for the dairy as they had ever been previously. The diseased animals are not separated from the others, nor does any particular attention to, or change of diet appear necessary.

We next proceeded to view a bath that has been recently erected, under the directions of Dr. Barter, by Mr. St. John Jefferies, of Blarney, and at which we were informed we should see several of his cattle under treatment. The situation for this bath has been well selected in a retired paddock of two or three acres, well walled in, at a convenient distance from the farm-yard. The bath differs in no essential part from the one already described, excepting that the fire is placed in the outer, or cooling, room, and over it is placed a large boiler, by which means various articles of cattle food can be prepared and a constant supply of hot water kept, without any additional cost for fuel. The cases uner treatment were, in all, six; five being the property of Mr. Jefferies and one that of a tenant of his, named Forest, living near.

Nos. 1 and 2 were well bred dairy cows that had been only under treatment two or three days. No. 1, a red cow, was evidently suffering severely from the attack, carried her head down, moved badly, had a quick draft on her breathing, and a short cough. No. 2, a roan cow, was also suffering under similar symptoms, but not so severely as No. 1.

No. 3, the property of Mr. Forest, was likewise under treatment for but three days, and was much reduced in appearance, and could not be said to be in a better way than her two companions. The above three cows were at large in the paddock, and, after some time we noticed the marks of recent bleeding on Nos. 1 and 2, and on questioning the man in charge, he informed us that both had been bled at the farm-yard previous to being sent to him for treatment, for no better reason, as far as he knew, than to 'see whether it would be of any service.' It is scarcely necessary to say that this treatment was very injudicious, and Doctor Barter stated that it was entirely contrary to his usage or advice in such cases, and that it must render their recovery slow and tedious.

We next went to the bath and found two cows in it, one that we shall call No. 4, in the outer or cooling room, just after having had several buckets of water thrown over her on coming out of the warm room, and another, No. 5, was still in the hot room. No. 4 was one of those tedious, uncertain cases of distemper that every one who has suffered much from it among their cattle is familiar with. After the violence of the attack is over, the animal seems to stand still; there are no urgent symptoms, but no recovery. They become much wasted in condition, a short hard cough remains, and you feel uncertain whether they will live or die, and would almost prefer the latter, for any value they seem likely to prove. This cow had been for over two months under treatment, and for a long time with little or no perceptible improvement till about a week previous to our visit, when a copious discharge of thick matter commenced from the nostrils, which the bath seemed to encourage, and when we saw her there was an appearance of a considerable quantity having been recently discharged; she was still in very low condition, but the man in charge described her as much improved since the discharge had commenced, and stated that they had had even worse cases that had entirely recovered under the same treatment.

On No. 4 being turned out, we went into the hot room to see No. 5 in the bath. We were

informed she had been about an hour and a half in, had been eight days under treatment, and as we were able subsequently to satisfy ourselves, had scarcely a trace of disease about her, and the next day was to be returned to the herd cured. She seemed quite to enjoy her position, the perspiration was rolling off her freely, and her breathing was slightly quickened. She carried her head erect, her eyes clear and healthy, and when she was removed to the outer room to get her douche bath, no one could mistake the feeling of refreshment and pleasure that the dashing of each successive bucket of water over her seemed to give, and when she had been slightly rubbed down she was turned out to graze, the day being fine and warm, but when otherwise there is a shed close by into which the animals are turned after leaving the bath, to let them further cool and dry before being allowed out.

The last case, No. 6, was a fine cow that had been about a week under treatment, but had been neglected for some time before being brought to the bath, and was quite in a hopeless state, breathing hard and in pain, and on examination we found that she was suffering from a complication of diseases other than lung distemper, as we ascertained that the air was circulating freely through both lungs, and we further ascertained that one of her most urgent symptoms, constipation, had been for two or three days entirely unattended to.

We next proceeded to the farm of Mr. Forest, one of whose cows we had seen under treatment at the Blarney bath, and for whom Doctor Barter had last winter put up in the end of a small outhouse a simple bath, which had cost him six pounds. This bath is similar in construction to the others we have described, but too small and faulty in its ventilation; for these reasons, since Mr. Jefferies' bath has been opened, he prefers, with his landlord's permission, sending any cows he may have in distemper, of which he seems to be never quite free, to the Blarney bath. Here we were shown two cows which, by all the persons who had seen them early last spring, are considered to illustrate the extraordinary curative power of the bath beyond any of which we have yet spoken. They were described to us to have been in a far worse state for a considerable time than the cow No. 4 mentioned in our description of Mr. Jefferies' bath. We saw both grazing with the rest of the dairy stock in full milk; one was in perhaps the best condition of any cow in the field (about 25 in number) and the other a heifer that had had her first calf at two years old, and was, in consequence (independently of her severe ordeal of last winter) in low condition, but healthy, with a clear eye and a smooth coat.

We next proceeded to Mount Desert, the residence of Nicholas Dunscombe, Esq., who this year holds the office of high sheriff of the county. Here we were shown a very elegantly constructed bath, which he and his whole family use constantly, and attached to it a box or stall heated by a flue carried from the adjoining bath, in which he is in the habit of treating any of his horses in sickness as well as those he wishes to improve in condition or general health. There has been a good deal of distemper going among horses in the district for some time past, and he informed us he had treated several in the course of the last spring with the bath alone, with entire success. One of his carriage horses had been attacked very severely about four or five days previously, and when we arrived was actually in the bath; the door was opened for us to see him, and we found him, as in the case of the cow at Mr. Jefferies', with the perspiration rolling off him, and evident marks about his nostrils and throat of the violence of the attack; but the groom stated that for the previous two days he had been on the mend, and expected that two or three more days of the bath would perfect his cure.

Mr. Dunscombe further mentioned to us the case of a favourite setter dog that a short time before had got a bad attack of distemper, and with it a lameness in the shoulder, for which he could not account. He treated him with the bath, and after the third day a surfeit of boils broke out under the shoulder and on other parts of his body, and he rapidly got better, and in ten days was perfectly well.

One circumstance is worthy of remark, which applies to all the animals treated in the bath, and testified to by the men in charge of the four different baths we were shown, namely, the evident pleasurable recollection the bath seems to leave with them; all the different animals, horses, dogs, cattle, and pigs going of their own accord to the door of the bath, and dogs particularly indicating their anxiety by waiting at the door whining till it is opened, and then running in.

This finished our inspection, and we now beg to submit to your council the conclusions at which we have arrived from the above facts, and the information we were able to obtain in the course of our inquiries.

First, the proportion of deaths to recoveries in the treatment of cattle distemper with the Turkish bath does not appear to exceed one in ten, while the proportion that has been hitherto usual under other forms of treatment has varied from one death in 3 to 1 in 4 of the cattle attacked.

Secondly, That the constitution is not impaired by the treatment with the bath as it is by any of the other systems with which we are at present acquainted; and that this fact is particularly illustrated by the rapidity with which, in every case, the milk almost immediately returns on the animal being relieved from the disease.

Thirdly, That in the treatment of several of the well known serious diseases of the inferior animals, its use has been attended with the most favourable results, and particularly in all inflammatory diseases of the internal organs.

In conclusion, while we are far from thinking that a subject of such vast importance could be satisfactorily investigated in the very limited time we were able to devote to it, we nevertheless feel that we have seen and heard quite enough to warrant us in commending the subject to the calm and serious investigation of those most vitally interested in the subject; and as a favourable opportunity will occur in the course of the next month, when the annual show of our society is to be held in Cork, within a few miles only of the spot where we have been witness to the results above described, we would strongly urge all parties interested to go and see, and judge for themselves.

We would also suggest to your council that much public interest and curiosity would be gratified by their accepting the offer some time since made by Dr. Barter, to put up a bath in the show-yard at Cork and exhibit the working and construction of it, and that the council do offer a sum of £20 to Dr. Barter to defray a portion of the expense of so doing, and we would further suggest that Dr. Barter should be requested by your council to deliver on the morning of the first day of the show, before the public are admitted into the show-yard, a popular lecture on the use of the Turkish bath in the treatment of the diseases of the inferior animals.

Lois Weedon System of Wheat Culture.

We referred to the Rev. Mr. Smith's system of cultivating wheat at Lois Weedon, Northamptonshire, England, in our last. The following concise sketch of his operrations is from an article on the "Principles of Manuring," in a late number of the London *Farmers' Magazine* :—

"As a means of illustrating both the principles and practical bearings of this celebrated controversy, it is impossible to select a more apposite, instructive, or important instance than that presented by the well-known agricultural triumph in successive and un-manured wheat-growing achieved by the Rev. Samuel Smith, at Lois Weedon. The manner of his yearly cultivation is as follows: At the usual time in autumn, the seed is drilled in strips, which (consisting, as each set does, of three rows ten inches apart) occupy thirty inches in width, and between strip and strip there is left an unseeded space of similar dimensions. During the growth of the plants in the ensuing season, the rows receive sedulous attention in hand-hoeing; while, at the same time, the interspace between strip and strip undergoes a constant succession of horse-hoeing and other fallow operations. Next year these fallowed spaces bear the strips, and the stubble of the preceding year's crop is plowed up and summer-fallowed in like manner. In one point of view, there is a perfect analogy between this expedient and a practice not uncommon on the heavy land of Essex, in which is pursued field by field the simple alternation of corn one year and bare fallow the next, to be again succeeded by corn, and so on for ever; but in various circumstances of detail, into which we shall not here enter, the Lois Weedon method possesses a superiority very favorable to both healthy and prolific cereal productiveness. Mr. Smith's experience in this mode of management dates back to the year 1846. The area of his operations is comparatively small, being only five acres. The soil is above average quality, and consists of a staple of good wheat land, resting on wholesome clay, and naturally dry. The implement used for inverting the soil is the spade, or fork, in place of the plow. The average yearly produce for twelve years, ending with crop 1859, has been upwards of thirty-six bushels per acre of prime marketable wheat; and the expenses of tillage, rent, &c., are as follows:

	£	s.	d.
Digging and cleaning	1	14	0
Horse-hoeing, three times	0	6	0
Plowing	0	4	0
Hoeing and hand-weeding	0	5	0
Three rollings with crushers at seed-time and at spring	0	3	0
Two pecks of seed	0	2	6
Dibbling	0	5	0
Bird-keeping	0	4	0
Earthing-up wheat	0	3	0
Reaping, &c., thrashing, and marketing	1	13	0
Rent £2, rates and taxes 4s. 3d.	2	4	3
Total yearly expenses	£7	3	9
Value of thirty-six bushels of wheat at an average price of 6s. 6d. per bushel	£11	14	0
Deduct expenses as above	7	3	9
Annual profit per acre besides the value of the straw	£4	10	3

One other element of Mr. Smith's practice still remains to be stated, (and on account of its paramount importance it has been reserved for special notice,) namely this, that in each summer fallowing of the interspaces a method of deep cultivation is pursued, by which the upper and under stata of the staple are stirred, and inverted to the depth of ten or eleven inches; and if it be asked upon what grounds was this trenchant and very thorough tillage resorted to, the reply is, because theory and practice alike assured the experimentalist—1st, that usually in the soil, and ever in the air, there is abundance of nutriment for cereal crops, in proportion as the mineral and atmospheric elements are brought into mutual reaction within the pores of the soil, by perfect cultivation; and hence, 2dly, that by means of perfect tillage,

the aid of adventitious fertilizing substances is not indispensable to the profitable growth of corn.

In point of agricultural importance, no industrial circumstance belonging to the present century is more entitled to deep consideration, than this brilliant, yet sound instance of tentative husbandry; nevertheless, in order to appreciate its true practical value, it is necessary to bear in mind, that as respects the happy combination of operative details of which it is made up, it consists of no principle or expedient in cultivation which had not been known and practiced before. As an example of cereal productiveness, procured without the intervention of cattle crops, what other unalternate system than this prevailed in England, when, prior to the introduction of roots and clover in rotation, she not only fed her own population with corn, but exported it largely to foreign parts? Nay, more—what other than this, is the still existing policy in the cereal countries of continental Europe, which now so largely provide England with breadstuffs. As for the *interculture* of the Lois Weedon method, admirable and efficient as the expedient is, it can be regarded simply as an adaptation to corn tillage of that method of drill husbandry hitherto confined in general practice to the fallow crops only; while finally, the deep working, if not so generally prevalent as it ought to be, has long existed in many of the best-farmed districts of the island.

Now, the moral we wish to point out, in the foregoing statement, is this—that, from the case where, under sunny skies, and on a rich soil, the lazy husbandman has only to scratch a little covering of earth over his corn seed to produce an abundant crop, up to the elaborate processes of Lois Weedon experience, there is every variety and degree of evidence to show that wheat or any other kind of grain can profitably be raised by the power of tillage alone, and that the use of manures, whether obtained from the cattle crops of modern rotation husbandry, or from external resources, is not indispensably necessary to profitable cereal husbandry. Nay, more—from the practice of all nations it is deducible, that in proportion (within certain bounds) to the greater depth to which a soil is stirred, and to the perfect annual tillage it receives, the produce of that soil will be more abundant.

The Provincial Exhibition.

We take the following detailed description of the "Crystal Palace," and of the other works, now in progress of completion for the exhibition, from the Hamilton *Banner*. The description accompanied an engraving of the Palace, which appeared in that paper:—

"The Palace is being erected on the site selected by the City Council, which fronts on King Street West, and extends to York Street. It commands a splendid view of the city, the bay, part of Lake Ontario, and of the surrounding country. There is probably no site in the Province finer than that chosen for the Hamilton Crystal Palace. The building will be of wood and glass, upon a permanent stone foundation. The entire area of the building is about 36,000 feet. The ground plan is octagonal in form, having four transepts. The building will be two stories in height; the first story 16 feet in the clear, and the second 15 feet to the line of the eaves, with an arched roof of light appearance. At the intersection of the cross, is an octagonal space 76 feet in diameter, and 54 feet to the line of the roof, this portion is also arched in a most substantial manner; the roof will be surmounted with a cupola. The extreme height from the ground floor to the top of the dome is 100 feet. A flag staff 25 feet is raised above the dome. The length of the building is 171 feet, by 71 feet in width, and contains about 24,000 feet on the ground floor. There are four galleries, 54 feet wide by about 64 feet long, with a corridor running round the centre octagon, connecting all the galleries; these galleries contain about 12,000 square feet; four spacious stairways lead from the ground floor to the galleries. The diagonals which form the octagon are only to be carried up one story, with flat tin roofs—access to which can be obtained from the galleries, affording a fine place for a promenade, and a beautiful view of the city and bay. One of the galleries will be fitted up especially for the exhibition of fine arts—three sides of which are to be close-boarded, and the light to be admitted through the centre of the roof by a lantern-light extending the whole length, the glass to be frosted, or obscured in order to diffuse a mellow light. The whole of the glass throughout the building is to be frosted. All the windows in the building are to have semi-circular heads, with cut trusses under the same. The whole of the wood work, in the exterior as well as interior, is to be planed or wrought, together with the cornices; these cornices are to be supported at intervals with fine cut brackets. The building is to be painted outside with a warm light color, or stone tint, in oil, and it is intended to paint the interior in fresco. The dome is to be covered with tin, which will render the building picturesque, and be seen a distance of several miles around. The gallery flooring is to be dressed and laid open, and the under side of the galleries lined with dressed boarding, to prevent the dust rising.

The building was designed by, and is being erected under the superintendence of Mr. A. H. Hills, architect, of this city. The contractors for the erection of the building are Mr. J. Taylor, for mason work; Messrs. R. Gordon and W. & R. Chisholm, for the wood work; Mr. George Smith, for the tinner's work, and Messrs. Fitzpatrick & Brother, the painting and glazing. The cost of the building will be about $14,700. It is to be entirely completed by the first of September next.

In addition to the Palace, the Exhibition Grounds will be attractive of themselves. The space occupied is about 20 acres. The whole is enclosed by a close board fence, 8 feet high, with large entrance gates, one at the corner of King and Locomotive streets; and another on Locomotive, fronting Little Main street. The offices for the use of the respective Committees are at the extreme North East corner of the grounds. Here the principal Ticket Office will be located, and several small gates will give admission to the grounds. The King Street front is entirely occupied with stabling, all being separate stalls but two, which are double. There is sufficient room for 100 horses, with half-doors to admit of ventilation, and give visitors a chance of seeing the horses in their stalls. The stables are sufficiently roomy and airy, besides having a good shingled roof and flooring of three inch plank. The cattle sheds will hold about 250, each stall holding three, and being secured with bars. The sheep and pig pens are now in course of erection at the west side of the grounds; they will be covered over with a board roof. The building for the reception of manufactures in metals, machinery, &c., has not been commenced yet, nor the enclosures for the poultry. When completed, the accomodation will be found sufficiently ample, and the arrangements all that could be desired. It will certainly be an ornament to our city, and the grounds will soon become one of our most favourite resorts.

Patents of Invention.

From a list of Patents granted for a period of fourteen years, in the *Canada Gazette* of July 14, we select the following as relating to Agricultural operations:—

Samuel Tuck, of the Town of Sherbrooke, in the District of St. Francis, Iron Founder, for "A new and improved cast-iron Ploughshare with Steel point,"—(Dated 12th January, 1860.)

Charles Horatio Waterous, of the Township of Brantford, in the County of Brant, Machinist and Iron Founder, for "An improvement in the application of Steam Power and in the manner of making such application for the purpose of moving and working Steam Ploughs, Steam Fire Engines, &c., &c.,"—(Dated 27th January, 1860.)

Hugh McLaren, of Lowville, Township of Nelson, County of Halton, Founder, for "An improved Straw Cutter,"—(Dated 9th February, 1860.)

Gideon Huntington, of the Township of North Norwich, in the County of Oxford, Iron Founder, for "A certain Gang Plough, Cultivator and Sowing Machine combined,"—(Dated 18th February, 1860.)

John Y. Lambert, of the Township of Fullarton, in the County of Perth, Carpenter, for "An improved washing Machine,"—(Dated 18th February, 1860.)

Andrew Mulholland, of the City of Quebec, Brass Finisher, for "A vertically rotating and Stationary Break Churn,"—(Dated 24th February, 1860.)

James Cinnamon, of the Village of Oshawa, in the County of Ontario, Wood Turner, for "An improved Washing Machine,"—(Dated 27th February, 1860.)

Samuel Tuck, of the Town of Sherbrooke, Iron Founder, for "A new and useful manufacture, styled, Tuck's Cast Iron Sugar Boiler,"—(Dated 2nd March, 1860.)

Thomas A. Jebb, of the Township of West Gwillimbury, in the County of Simcoe, Lawyer, for "An improved Churn,"—(Dated 7th March, 1860.)

Thomas Scott, of Newburgh, in the County of Addington, Blacksmith, for "A new Cultivator,"—(Dated 7th March, 1860.)

Arnold Gage, of the Township of Burford, in the County of Brant, Yeoman, for "An improved Churn,"—(Dated 13th March, 1860.)

David Lusk, of the Village of Newmarket, in the County of York, Carpenter, for "A Blower for cleaning Grain,"—(Dated 13th March, 1860.)

Mathew Henry, of the Township of Campton, Cabinet-Maker, for "A useful manufacture styled Henry's Concave Sugar Boiler,"—(Dated 19th March, 1860.)

William Fraser Cochrane, of the Village of Port Bruce, in the County of Elgin, Engineer and Millwright, for "An Atmospheric Flour Bolting Chest,"—(Dated 27th March, 1860.)

Charles Holmes, of the Town of St. Catharines, in the County of Lincoln, Miller, for "An improved Grain Separator,"—Dated 27th March, 1860.)

John Brokenshire, of Bowmanville, in the County of Durham, Pump Maker, for "A double action wooden Suction Pump,"—(Dated 27th March, 1860.)

Michael Walsh, of the Town of Perth, in the County of Lanark, Laborer, for "An improved Churn,"—(Dated 27th March, 1860.)

Samuel V. Perry, of the Township of Ernestown, in the County of Addington, Mechanic, for "A new and improved Machine for Thrashing, Separating and Cleaning Grain,"—(Dated 29th March, 1860.)

William Holton, of the Township of Harwich, in the County of Kent, Laborer, for "An improved Mould-Board for Ploughs,"—(Dated 10th April, 1860.)

Samuel Hulbert, of the Town of Prescott, in the County of Grenville, Founder, for "An Air Pump dash Churn,"—(Dated 19th April, 1860.)

Joseph Patching, of the City of Hamilton, in the County of Wentworth, Brakesman, for

"A new article styled "Patching's Car Ventilator,"—(Dated 19th April, 1860.)

Thomas Thorpe, of the Town of Guelph, in the County of Wellington, Joiner, for "An Air tight out-lifting Spring Sash window,"—(Dated 19th April, 1860.)

Henry Fryatt, Junior, of the Village of Aurora, in the County of York, Carpenter, for "An improved Method of Opening and Shutting Gates,"—(Dated 19th April, 1860.)

William Henry Magee, of the Village of Merrickville, in the County of Grenville, Iron Founder, for "A new Method of constructing Ploughs,"—(Dated 19th April, 1860.)

Joseph Jessup Macintosh, of the Township of Yonge, in the County of Leeds, Miller, for "A Grain Separator, styled "Macintosh's Patent Flue Grain Separator,"—(Dated 29th April, 1860.)

Robert Walker Grant, of the Town of Brockville, in the County of Leeds, Tin Smith, for "An improved Churn, styled "Grant's Excentric Double Dash Churn,"—(Dated 29th April, 1060.)

Philip Cady Van Brocklin, of the Town of Brantford, in the County of Brant, Iron Founder, for "A combined Seed Drill Cultivator and Horse Hoe,"—(Dated 29th April, 1860.)

Josiah James, of the Township of Whitchurch, in the County of York, Machinist, for "A universal Joint Walking beam for churns, and other Machinery,"—(Dated 29th April, 1860.)

Joseph Millard, of the Village of Newmarket, County of York, Cabinet Maker, for "A screw regulating Cheese Press,"—(Dated 11th May, 1860.)

Hugh Sym Campbell, of the City of Toronto, County of York, Contractor, for "An improved Churn,"—(Dated 11th May, 1860.)

Horace A. Combs and Ashman P. Combs, both of the Village of Ontario, County of Wentworth, Yeomen, for "An improved double acting Churn,"—(Dated 11th May, 1860.)

John C. McDougal, of the City of Toronto, County of York, Machinist, for "An Octagonal Churn,"—(Dated 11th May, 1860.)

John I. Shotwell, of the Township of Yarmouth, County of Elgin, Carpenter and Joiner, for "The Excelsior Churn,"—(Dated 29th May 1860.)

John Bernard Robinson, of Drummondville, County of Welland, Miller, and John Jago, of Mulmur, County of Simcoe, Millwright, for "An article styled the Robinson and Jago improved method of Bolting Flour,"—(Dated 30th May, 1860.)

Alanson Harris, of the Village of Beamsville, in the County of Lincoln, Founder and Machinist, for "A combined Corn Sheller and Root Cutter,"—(Dated 30th May, 1860.)

Joseph St. Germain, of the City of St. Hyacinthe, Maker of Agricultural Instruments, for "A Balance Wheeled Horse Rake,"—(Dated 1st June, 1860.)

Adulteration of Guano.

The *Irish Farmer's Gazette* of July 7th publishes a lengthy report of a case just disposed of at the Police Court in Dublin, showing the extensive frauds practised in the manufacture and sale of Artificial Manures. There is but little sale yet for guano or other artificial manures, except gypsum, in this country, but this and similar exposures show the necessity of farmers making sure that they get the genuine article, when they do resort to manures of this character; which will doubtless soon be the case to a much greater extent than heretofore. The *Gazette* says :—

"This matter is one of the greatest importance to agriculturists, and we believe our readers will all rejoice when they learn that the Crown has stepped forward in this manner to protect the public against those who are engaged in the nefarious trade of compounding materials, which they vend under the name of guano, and by means of which such enormous frauds have been perpetrated. Too much praise cannot be awarded to the crown officers for the steadiness with which they have prosecuted the inquiry during the last two years. A great blow has been struck against frauds, not only in the guano trade, but also in other branches of business; and the prosecution of this case will have caused dismay in the minds of more than the mere dealers "in yellow clay and oyster shells."

The particulars of the case give us the entire secrets of the trade. We have the parties engaged in it as agents stating the prices at which they sold "the stuff," namely, £14 10s. per ton; although it would appear from the evidence of one witness, that even this sum was not sufficient at first to satisfy the rapacity of the compounders. Then we have a graphic description given by more than one witness of the different marls used, with the seasoning of "gypsum, salt, and burned shells;" again, we have the evidence of the parties employed in the actual work, and what they did "when they wanted to rise a smell;" next appear on the stage the very individuals who have been fortunate enough to find the Chincha Islands on their own farms; then, again, the active police officers describe how they watched the progress of what one witness innocently terms "trying experiments for making manure;" and finally we have the crushing evidence of Dr. Apjohn, who proves that this very satisfactory "manure," sold as Peruvian guano, and at the price of Peruvian guano, which gave good crops, "magnificent crops," was worth only £4 16s., instead of the £14 10s. which was so very modestly charged for it.

This prosecution has given us more than usual pleasure. Foe years past we have been warning the farmers of Ireland that vast quantities of adulterated guanos were being annually sold under the pretence of being genuine, and we have repeatedly urged the necessity of active steps being taken to protect the poorer and less

intelligent part of the community—those who were not in the habit, perhaps, of seeing such warnings, although well able to pay for the medium through which they were conveyed, as well as those who could not be expected to profit by them. We have endeavored to impress upon all the propriety of having samples of the artificial manures which they purchase analysed, from whatsoever source such might be derived; and we have told farming societies that it was a part of their duty to protect their members, and the districts which formed the scene of their operations, by having recourse to the aid afforded by the professional chemist. The case of the Crown *v.* Creaghs—forming only one out of the many which will be brought forward—shows that our warnings were not uncalled for, and we trust will be a lesson inculcating caution for the future. As yet the case has only reached its preliminary stage—an important stage, no doubt, but still not the most important; and considering the interests which are at stake, and the injury which has undoubtedly been committed on the public at large, we trust we will not be considered as interfering with the course of justice if we express a hope that, should the parties be ultimately convicted, they will be as severely punished as the law of the land will allow.

Correspondence.

Wine Culture in Canada.

Editors of the Agriculturist—With great pleasure I notice in your last issue some communications on the subject of wine growing in Canada. The subject is not altogether new to this locality. Three years ago four or five barrels of wine were grown from a single vine in one season in the Township of Grimsby. The grape is a native, and the wine very much resembles port, so much so, that persons tasting it for the first time frequently speak of the similarity. It is perfectly hardy and stands our coldest winters without in the least destroying its vitality. I obtained a vine six years ago last spring, it now covers some forty feet square of trellis and I think has at least twelve hundred clusters of grapes. The clusters are about the size of the Clintons. The wine sells in this locality for one dollar and three quarters per gallon, and probably would bring more if we asked it, at all events it is worth four times as much as the miserable stuff generally sold by our merchants under the name of wine. We intend to show our wine at the Provincial Fair this fall, and hope the judges will publish their opinion of the same. We have in this part of Canada a number of the new native grapes, a good representation of which will no doubt find their way to the Provincial Fair this fall; and we advise all who feel an interest in this important branch of our agriculture to keep their eyes wide open, as they will be likely to see many things in this department that will susprise them. We have open air grapes that will vie in size and flavor with the far farmed black Hamburgh, and I think there is not the least reason to doubt but that we can grow wine in any quantity and of excellent quality. I have grapes that will measure to-day over two inches in circumference to the single berry, and number over fifty berries to the cluster. I fear that I am trespassing too much on your time and patience, but if you think these few thoughts likely to benefit your readers you are at liberty to publish them. If these remarks meet your approbation, I may give you some more of my notes on horticultural matters. John C. Kilborn.

Beamsville, C.W., July 23, 1860.

[We are much obliged to our correspondent for his interesting communication, and hope that others who are in possession of similar facts will let us have them.—Ed.]

Things Seen, Heard and Thought of.

Editors of the Agriculturist,—I will record several things—first, what I have *heard;* secondly, what I have *seen*, and thirdly what I have *thought*. As to what I have heard. Mr. James Scrogie, of the Township of Binbrook, has made some 900 yards of underground drain, 250 yards of this passed through a low wet portion of his farm, where he had lost in part several crops of grain on account of the superfluity of surface water. He has reaped two crops since he made the drain; the first of these crops consisted of *corn* and *potatoes* and gave a splendid yield. He took the *first prizes* both on corn and potatoes at the agricultural show of the four townships, viz: Barton, Glanford, Saltfleet and Binbrook. Last harvest he reaped from the same land a crop of barley which yielded 57 bushels to the acre. So much for underground drainage. Farmer Kemp, whose farm adjoins mine, informs me that he last year gathered 150 bushels of barley from two acres of land.

As to what I have *seen*. I have generally observed among all kinds of grain that few are pure. A mixture of kinds seems by some means to take place. I sowed a year ago last fall what is called the blue-stem wheat, and last harvest I found that there were five varieties. Among these was a wheat, with a stout straw of a rather yellow tinge, a fine medium sized head, thickly set with grain with white chaff, and yielding more abundantly than any of the other varieties in the field. I gathered a handful of it, and planted it in the garden, and had the midge let it alone it bid fair to have given an extra yield. May we not often discover new varieties of a superior kind by thus going through the field and making a selection of the earliest and finest varieties?

A word as to what I have thought. We have our agricultural shows, at which exhibitions of taste and skill and success in all the arts and

sciences, and handy works of man, are set forth in all their splendor, much to the satisfaction, pleasure, and profit of the community. Then we have our plowing matches; and I have thought it would be wise for our county agricultural associations to get up a *draining match*, and that four handsome prizes be awarded to the men who shall dig the drain one hundred feet long, lay the pipe and fill it in, and do it the best and the quickest; that is to say, each man shall dig and lay the pipe 100 feet. As I have taken the writing of this for a noon-spell I must now bring it to a close. STEPHEN KING.

Ryckman's Corners, July, 1860.

Trial of Mowing Machines.

EDITOR AGRICULTURIST.—As duly announced, the trial of Mowing Machines under the direction of the West Durham Agricultural Society, came off in this place last week. There were seven machines at work.

After a thorough test, both as to manner of cutting and lightness of draught, the Judges were unanimous in awarding the first prize to H. A. Massey, Esq., and the second to Messrs. Patterson & Brothers of Richmond Hill.

We can assure manufacturers, that if they want to dispose of their machines or bring them into notice, they should attend these matches. Farmers attend expressly to see them work, and make up their minds accordingly.

At the trial of Reapers which comes off some time next month, and of which due notice will be given, we expect to have a very large attendance. As has been before stated, it is not the amount of prize, for that is small, that has induced manufacturers and others to attend these trials and the society to hold them, but that, as many farmers in the county are yearly buying machines, it gives an opportunity for them to buy those which they may think, after a trial, will suit them best. E. A. M'NAUGHTON,

Newcastle, July 27, 1860. Secretary.

Increase of Root Culture.

EDITOR AGRICULTURIST.—In looking over the last number of the *Agriculturist*, in first article, "Hints for July," we observe you taking notice of Mr. Fleming selling over 100 bushels of Swede turnip seed, a great quantity certainly for him, and we thought probably it might be of some interest to you to know what quantity we have sold in this section. We enclose you our circular of our importations for this season; the quantities are copied from the invoices and are correct to a few pounds, and we are happy to say we are nearly sold out. We have every prospect here of a most abundant harvest, and we think we might compete with the best counties in England and Scotland, for Mangels, Turnips, and Carrots. MURDOCH, BROS.

Bowmanville, July 25, 1860,

[We find from the circular above referred to that the Messrs. Murdoch had imported the large quantity of 8350 lbs. of the different sorts of Swede Turnip, 1250 lbs. of other kinds of turnip, 2100 lbs. of Carrot, 1700 lbs. of Mangel, and 200 lbs. of Rape seed. This statement shows that the increase in root culture must be much more general and extensive even than we had supposed, and affords a gratifying proof especially, which we are glad to be able to chronicle, of the improvement taking place in the agriculture of that section of the country.—Ed.]

Agricultural Intelligence.

FLAX PULLING AND RETTING.—Flax, when sown early, will be fit for pulling by the middle or end of the month (July); it requires much nicety to determine the time when it should be pulled. The fibre is in the best state before the seed is quite ripe; if pulled too soon, though the fibre is fine, it will be rendered unprofitable, by the great loss it suffers in scutching and hackling, and if pulled after the seeds get ripe the extra weight does not compensate for the coarseness of the fibre. The proper or most profitable time is, therefore, when the seed capsules are changing from a green to a brown hue, and the stalk yellowish for about two-thirds of its height from the ground; the flax should be caught by the puller just beneath the seed bolls, by which all short stems will be left behind; the handfuls should be laid across each other in a slanting direction, so that the person who ripples may take them up without confusion. The rippling should be performed at the same time, or go on simultaneously with the pulling, and the flax carried to the water as soon as rippled. River or soft water is the best for steeping; the flax, after being bound in sheaves, should be placed in one layer, in regular rows, a little sloped, the head of each row lying on the roots of that which preceded it, and covered closely with thin, tough sods; as fermentation proceeds the flax will begin to rise, when additional weights should be laid on to keep it down; it requires 10 or 12 days steeping; it should be examined from time to time, every six hours, after the fermentation subsides; try some stalks of an average size, by breaking it across in two places, about six or eight inches apart; catch the woody part, and if it pull freely out, leaving the fibre behind, it is ready to take out of steep; then place the bundles on their root ends, close together, to let them drain for about 24 hours, and spread it out evenly and thin, on a clean, short pasture; turn it repeatedly with a rod about 8 feet long and $1\frac{1}{2}$ inch thick, and in about

from six to twelve days it will be fit for lifting, when it may be tied up in bundles, and if not soon to be scutched it may be put in small, loose stacks. Drying by fire is now exploded as being pernicious and destructive to the fibre, and if properly steeped and grassed exposure to the sun will make it ready for breaking and scutching.—*Irish Farmer's Gazette.*

Weeds.—*Weeds*, no matter whether found in the fields or by the ditch or road sides, give the idea of neglect and slovenly habits, and are a disgrace to the name of farmer; they impoverish the land, and rob the crops of that food which, in the shape of manure, often costs the farmer large sums; thereby reducing the quantity of produce, and rendering the corn crops difficult to harvest; for how often do we see the corn in the sheaf perfectly sound, and fit to carry, but cannot from the quantity of undried, succulent weeds bound up with it be brought to the haggard; and every day after the corn is fit for storing is a day of loss from exposure to the wind and wet and the ravages of birds and vermin, and at every handling it gets, the finest grain falls to the ground, and is for ever lost. Therefore, let the weeds be destroyed by hand-hoe, horse-hoe, scythe, and reaping-hook, using each implement where it is most appropriate before the weeds flower. By a little constant attention to these matters, the weeds, and the labour expended in their extirpation, will annually become less and less. The old adage of "one year's seeding saves seven years' weeding" should never be lost sight of. Weeds make a great addition to the manure and compost heaps, when cut at the time of flowering, and before they perfect their seeds; should the seeds be nearly ripe they should be burned; but the sooner they are handpicked or cut, the better, as they should be allowed to draw as little nourishment from the ground as possible.—*Ib.*

Horticultural.

Memoranda for August.

This is comparatively an easy month with the gardener. The planning and laying out grounds, sowing and planting, of spring and early summer being concluded, his attention is mainly directed to securing the proper growth, ripening and gathering of the vegetables, fruits, &c., which he has succeeded in establishing, till the more active operations of autumn commence.

The Kitchen Garden.—As the ground is cleared of early crops, some things may still be sown to advantage, such as winter radish, early turnips, and salads for fall use. Celery planted last month will require to be hoed occasionally, until grown of sufficient size for earthing, which is done with the assistance of boards, by laying them along the rows, to support the leaves while you are putting in the earth from the alleys, and removing them as you progress in the business. The earthing should never be done when the plants are wet, as this is apt to make the celery rusty, but should be performed gradually in fine weather as the plants progress in growth, repeating the earthing every two weeks; at which time care should be taken to gather up all the leaves neatly, and not to bury the hearts of the plants. Celery for winter use may be planted in the trenches as late as the middle of August, and if well watered and attended to will produce good roots.

Early planted cauliflowers will now be coming into flower. As soon as they show the flower, they should have a few of the leaves turned down over it, to prevent it turning brown, which would injure the quality materially, and in order that the heads or pulps may be compact. As the value of cauliflower depends greatly upon the manner in which it is cooked, the following directions from Bridgeman will not be out of place:—

"Cauliflower, and also Brocoli, should be gathered while the pulp is close and perfect. After having trimmed off some of the outside leaves, let them be boiled in plenty of water seasoned with salt, taking care to skim it, and also to ease the cover of the pot so as not to confine the steam. Take them up as soon as the fork will enter the stems easily, which will be in from ten to twenty minutes, according to their size and age; drain them so as to make them susceptible of absorbing a due proportion of gravy, melted butter, &c. This renders them a palatable and dainty dish."

The Flower Garden.—The work to be done this month will be very much the same as for the last, in regard to keeping the ground clean, tying up plants, &c. The following directions from Buist's "American Flower Garden Directory" on the budding of roses, are just in season:—

Of Budding or Inoculation of Roses.—According to what we have previously hinted in regard to having roses as standards, where such are desired, the month of July or August is a proper time for the operation of budding. The kinds to be taken for stocks should be of a strong, free growth; such as *Manitta*, *Maiden's Blush*, *R. Canina*, and frequently the *French Eglantine* are taken. Be provided with a proper budding-knife, which has a sharp, thin blade, adapted to prepare the bud, with a tapering ivory haft, made thin at the end, for raising the bark off the stock. For tyings, use

bass strings from Russian mats, which should be soaked in water to make them more pliable. The height of the stock or stem at which the bud is to be inserted, is to be determined by the intended destination of the tree (as it may be properly called.) Choose a smooth part of the stem, from one to three years old. Having marked the place, prune away all the lateral shoots about and underneath it. With the knife directed horizontally, make an incision about half an inch long in the bark of the stock, cutting to the wood, but not deeper; then applying the point of the knife to the middle of this line, make a perpendicular incision under the first, extending from it between one and two inches. Having a healthy shoot of the growth of this year provided of the kind that is desired, begin at the lower end of this shoot, cut away all the leaves, leaving the footstalk of each. Being fixed on a promising bud, insert the knife about half an inch above the eye, slanting it downward, and about half through the shoot. Draw it out about half an inch below the eye, so as to bring away the bud unimpaired with the bark, and part of the wood adhering to it; the wood now must be carefully detached from the bark. To do this, insert the point of the knife between the bark and wood at one end, and, holding the bark tenderly, strip off the woody part, which will readily part from the bark, if the shoot from which the piece is taken has been properly imbued with sap. Look at the inner rind of the separated bark, to see if that be entire; if there be a hole in it the eye of the bud has been pulled away with the wood, rendering the bud useless, which throw away; if there be no hole, return to the stock, and with the haft of the knife gently raise the bark on each side of the perpendicular incision, opening the lips wide enough to admit the prepared slip with the eye. If the slip is longer than the upright incision in the stock, reduce the largest end. Stock and bud being ready, keep the latter in its natural position; introduce it between the bark and the wood of the stock, pushing it gently downwards until it reaches the bottom of the perpendicular incision. Let the eye of the bud project through the centre of the lips; lay the slip with the bud as smooth as possible, and press down the raised bark of the stock. The bud being deposited, bind that part of the stock moderately tight with bass, beginning a little below the incision, proceeding upward so as to keep the eye unoovered, finishing above the incision. In a month after the operation, examine whether the bud has united with the stock. If it has succeeded the bud will be full and fresh; if not, it will be brown and contracted. When it has taken, untie the bandage, that the bud may swell, and in a few days afterwards cut the head of the stock off about six inches above the inoculation, and prevent all shoots from growing by pinching them off. This will forward the bud, which will push and ripen wood this season; but it must be carefully tied, as it grows, to the remaining head of the stock. Some do not head the stock until the following spring, thereby not encouraging the bud to grow, which, if winter sets in early, is the safest method.

Cold Vineries.—Attend to thinning the fruit in houses intended to furnish a late supply, and see that the bunches are severely thinned, and also that the crop left is not too heavy in proportion to the strength of the vines. Where the fruit is swelling be careful to maintain a moist state of the atmosphere, and give every possible attention to the roots, keeping the border in a healthy state as to moisture, and if watering is found necessary, use good strong manure water. Give abundance of air where the fruit is coloring, and do not allow plants in pots to remain in the house to cause damp, which despite every care in ventilation, is apt to settle on the berries and spoil the bloom. Where the fruit is ripe and expected to hang for some time, the atmosphere of the house should be kept as cool as possible. J. F.

A New Mode of Propagating.

A correspondent of the London *Gardener's* Chronicle of May 12th states that he has discovered a means by which he is enabled to strike and grow an almost incalculable number of plants in a very small space, without an atom of soil of any kind.

He says:—"I am not aware that this mode of propagation has ever been made known by any other person, so that, if you think it worthy of notice, you will do me a favor if you will give it publication. I also further beg to state, that my striking apparatus is simple, portable, and my own invention; and I need not explain to you that it is on strictly scientific principles, founded on the organic structure of plants. After the cuttings are probably struck, a little moss is tied round them; they will keep for a month in that state."

The Editors of the Philadelphia *Gardener's* Monthly, referring to this and other communications on the subject, says:—

"In one of our first numbers, the secret came out that there was no more difficulty in striking eyes of Native than of Foreign Grapes, *provided*, after they were cut ready for planting, they were suffered to lie mixed with damp moss for two weeks in a place secure from drying. Here they form a slight callosity, and when planted *all* grow. This hint we have reason to know has been extensively acted on, and thousands of dollars have been made through the in-

formation thus given. The hint, also, given by other of our correspondents, about leaving cuttings of such things as Cotoneasters, Prunuses, &c. in dark cellars in dry moss, when they would push roots freely,—the accounts of striking in Sphagnum moss, and many other details of practice and observation, have all pointed conclusively to one great principle, namely, that *'callus can be formed in any cutting before being put into the soil,'* and where that is effected, it can readily be made to root.

It is, in fact, now become well known to some—we may say many—of our most skilled propagators, that all cuttings can be made to callous, and then be made to grow. Apples, peaches, cherries and plums, are now freely struck by several in our immediate vicinity from cuttings, and many kinds of trees once thought impossible to propagate in that way, are now raised so very freely.

In our own experiments, we have found a common preserving bottle excellent for callousing hard cuttings. A sponge is pushed tightly into the bottom of the bottle, and water poured on. Then all the water is drained out that will go out by inverting the bottle, and the cuttings placed loosely in. No cork is placed in the bottle, and evaporation takes place slowly and the cutting soon forms the desired callus.

The whole secret, in fact, is in allowing free access of air to all parts of the cutting, at the same time taking care that *evaporation shall not be so excessive as to dry up the cutting.*"

The Pear Blight.—A correspondent of the *Rural New Yorker*, writing from Hamilton, C. W., offers the following suggestion as a preventive of the Pear blight, which has effected the young trees in that section badly. He is not able to give any remedy for those already affected:—

"About the middle of Septemeer, or as soon after as the leaves at the ends of the twigs begin to assume a brown, withered appearance, let all the young wood of that season's growth be cut back one half, let the sap bleed for a day or two, and then paint each cut end with a solution made of gum shellac dissolved in ether. This will soon dry, forming a hard coat over the wound, which will stop the further flow of sap, and resist the ingress of air or moisture. The sap will cease flowing, the tree will assume its dormant state, and when hard frost comes the sap vessels will not be able to become ruptured, or the sap frozen."

Profits of Fruit.—In the *N. E. Farmer*, mention is made of the Messrs. Clapp, of Dorchester, Mass., who, Col. Stone says, by systematic culture, raised each year, on five acres of land planted with apple trees, $600 worth of currants as an under crop; while at the same time, they had a large crop of the best apples. Their profits have been from $2,500 to $3,500 per annum.

The Syrian Grape.—J. R. Gardner, writing to the Albany *Country Gentleman* from Mont. Co. Virginia, says:—"It will perhaps be news to some of your readers, to hear that the Palestine or Syrian grape ripened in the open air at Lynchburg, in this State, last year, bearing bunches three feet in length and twelve or fifteen inches broad. I procured a vine one year old last fall, which has stood the winter without any protection, and is now making a tolerable good growth."

The Onion Maggot.—"An Experimenter" in a communication to the *Boston Cultivator*, says that he has succeeded in saving his onions from the depradations of the insect by sprinkling the ground plentifully with unleached ashes, and in case of dry weather, watering copiously, after the maggot had commenced its attacks.

Watering Plants.—During the summer it becomes necessary to resort to artificial watering for garden plants, trees, &c., and it is a matter of considerable importance to perform this operation in the best way and at the right time; the chief object being to supply just as much water as the plants need and no more. To do this, notice their condition at the time of application. If trees, which have been transplanted in the spring seem to be inactive, and thus throwing off but a small amount of moisture, very little water is required; young trees especially are apt to remain three or four weeks after being set out, without making any growth, and to give them an abundance of water would cause them to remain dormant rather than to help their growth. In such cases it is best to use water but very little. Again, if a tree grows fast and draws most of the moisture from the soil, water should be given, but not upon the surface. Break the top soil, and let the water soak well into the ground and not run off or form a hard crust upon the surface.

In watering garden plants the operation often does more hurt than good. By applying it on the top a crust is formed, and if water is again poured upon this crust it immediately runs off or helps to make a thicker crust upon the surface. This keeps the ground dry and the plant makes but a poor progress. A better way is to make several holes in the plant beds, or small ones by the side of the plant and pour the water into them. In this way it gradually soaks into the earth and the moisture is easily obtained by the rootlets of the plant. It is indeed the only proper way of artificial watering.

Evening is the best time to water plants. The sun is not shining and the state of the atmosphere is usually moist, which prevents a ready evaporation. L.—*Country Gentleman.*

Veterinary.

Cattle Disease.—The Genessee *Farmer*, in reply to a correspondent who asks if there is no other remedy for the cattle disease than to kill all the cattle which have been exposed to it, says:—"We can give no opinion on this subject. If the disease can be arrested by the slaughter of all the affected cattle, it will be a great blessing—although it may appear a great waste of property. We were in England when the disease raged there some years ago. We have known several head of cattle to be badly affected in a herd; some of which recovered, and many others in the same herd were not attacked at all. We were on the farm of a large dairyman of Moreton Corbet, Shropshire, when the disease appeared in the neighborhood. He immediately drenched all his cows with half a pound of Epsom salts, and a quarter of a pound of sulphur, and two ounces of spermaceti, dissolved in a quart or three pints (we are not sure which,) of warm water. His entire herd escaped, although the cattle on an adjoining farm were attacked and two or three died. We cannot say that the medicine he used was the cause of his escape, or that experience has shown it to be generally useful."

The Cattle Disease of Eastern New York.—The New York News states that the pleuropneumonia has made its appearance in several of the counties on the Hudson River. It says no less than twelve head of cattle have died of the fatal disease within the last few days at Vail's Gate, Orange County, and that Mr. Jacob Storms, of Southeast, Putnam County, has lost seven cows within the last two weeks. Other persons, in Carmel, in that county, have also lost several. If this is correct, it behoves the farmers of this State to be on their guard, but we suspect the truth is exaggerated. However, as "caution is the parent of safety," it may be well to be prepared for the epidemic.—*Rural New Yorker*, (7th July).

The Dairy.

Machine for Milking.—The *Scientific American* contains an engraving and description of a machine for milking cows, patented by L. O. Colvin, of Cincinnati, N. Y. The invention consists of an apparatus attached to the side of the pail, in which are two small pumps worked by levers, and which act upon the cow's udder through teat cups so arranged as to suit the size of any teat.

"The whole forms a compact, neat and durable milking machine, and, with pail, only weighs six and one half pounds. It has been used daily for eight weeks, and the inventor states it does not injure the cow in the least, and they stand quiet during the process of milking as if pleased with the operation. The best time ever made with the machine was twelve quarts of milk in one and three-fourth minutes, three minutes being sufficient time and with much less labor than by hand."

We have considerable doubt of the necessity for or applicability of such a machine, but notice it, as one of the instances of the inventive genius of our neighbors.

Poultry.

The Dorking Fowl.

This justly celebrated breed of fowls is of very ancient origin, having been recorded in some ancient poultry books more than two thousand years ago. They are remarkable as having five toes on their feet.

This breed is liable to degenerate if bred in and in too closely, and the male bird should be changed every year, if it is desired to keep up the stock to perfection. They have been imported to this country, and much used to cross with and improve our common barn-yard fowl; but it is yet rare to meet with a Dorking on the farms in this country, of pure and uncontaminated blood.

For general purposes, we think this breed the best of the whole poultry tribe; and they are also hardy, and able to stand our cold winters. —*Genesee Farmer.*

Domestic.

Cure for Erysipelas.—Beat raw cranberries to a paste, and bind on the parts affected.

Park Cake.—Two cups molasses; one of sugar; one of chopped pork; three of flour; one spoon soda.

White Wedding Cake.—One pound flour; one of pulverized loaf sugar; three-fourths of a pound of butter; whites of ten eggs; two nutmegs; oil of lemon.

To make Opedildoc.—Take the best Castile soap, two ounces; gum camphor, one ounce; alcohol, one pint—mix the soap with the spirits, and let them stand in a moderate heat until the soap is dissolved, occasionally shaking the vial —then add the camphor, and continue to shake the vessel frequently until the soap is dissolved, occasionally shaking the vial—then add the camphor, and continue to shake the vessel frequently until the whole is dissolved. Useful in sprains, bruises, and in rheumatic pains.

Clay Cups.—Three cups of sugar; one cup of butter; one cup of sweet milk; six eggs; two teaspoonfuls of cream tartar; one teaspoonful of soda. The whites of the eggs beaten to a froth, and flour added to make of the usual consistency.

Loaf Cake.—Mrs. S., of Chautauque Co., N. Y., inquires if some one will give her a recipe for making plain loaf cake with hop yeast. I will give my plan:—Five pounds of flour; two of sugar; three-fourths of lard; three-fourths of butter; one pint of yeast; six or eight eggs; one quart milk; raisins and spice to your taste. Make your dough as for bread, and after raising sufficiently, work in the other ingredients. Put into tins and raise again.

I also give a receipe for molasses gingerbread:—One cup of molasses; one of cream; one spoon of ginger; one teaspoon of saleratus; two eggs. Make as thick as common soft cake.—M. S., *Kalamazoo, Mich., May*, 1860.

Lemon Cake.—Take one teacup of butter, and three of sugar; rub them to a cream; stir into them the yokes of five eggs, well beaten; dissolve a teaspoon of saleratus in a cup of milk, and add the milk; add the juice and grated peel of one lemon, and the whites of five eggs; and sift in as light as possible four cups of flour.

Ginger Snaps.—One pint of molasses; one spoon of ginger; one teaspoon of saleratus, boil all the ingredients thoroughly. When nearly cold add as much flour as can be rolled into the mixture, and cut very thin—M. C., *Bennington, N. Y.*, 1860.

Bachelor's Corn Cake.—A pint of sifted corn meal, and a teaspoonful of salt; two teaspoonfuls of butter, and a cup of cream; two eggs well beaten. Add milk till it is a thin fritter batter, and bake in a quick heat, and it rises like pound cake.

Lemon or Orange Ice Cream.—Squeeze a dozen lemons, and make the juice thick with sugar; then stir in slowly three quarts of cream, and freeze it. Oranges require less sugar.—*Mrs. Wear.*

Pickling Sweet Apples.—To one half peck sweet apples make a syrup of two pounds sugar, and one pint of vinegar. Boil the apples in this syrup until tender; then remove them, and make a syrup of 2½ lbs. of sugar and one pint of vinegar. Add one teaspoonful of cloves, and one of cinnamon tied in a bag. Let the syrup boil 15 or 20 minutes; then pour it, while hot over the fruit. The first syrup is good for other sauces.

To Prepare Citron for Fruit Cake.—Pare and steep the citron until soft, then add an equal quantity of sugar; dry them in a dish until the juice is nearly dried out, then spread them on plates and set them in a lukewarm oven until dry. Add a few drops of extract lemon, and they are ready for use.—Mrs. N., *Gouverneur, N. Y.*, 1860.

Raised Muffins.—One pint of milk and two eggs; one tablespoonful of yeast and a spoonful of salt. Mix these ingredients with sufficient flour to make a thick batter. Let it rise four or five hours, and bake in muffin rings. This you will find most excellent. Tilda.—*Rural New Yorker.*

Miscellaneous.

A Mother's Love.—Children, look into those eyes; listen to that dear voice; notice the feeling of even a single touch that is bestowed upon you by that gentle hand?—Make much of it while yet you have that most precious of all good gifts—a loving mother. Read the unfathomable love of those eyes; the kind anxiety of that tone and look, however slight the pain. In after-life you may have friends—fond, dear, kind friends—but never will you have again the inexpressible love and geutleness lavished upon you, which none but a mother bestows. Often do I sigh, in my struggles with the hard, uncaring world, for the sweet, deep security I felt when of an evening, nestling to her bosom, I listened to some quiet tale, suitable to my age, read in her tender and untiring voice. Never can I forget her sweet glancea, cast upon me when I appeared to sleep, never her kiss of peace at night! Years have passed away since since we laid her beside my father in the old churchyard; yet, still her voice whispers from the grave, and her eye watches over me, as I visit spots so long since hallowed to the memory of my mother.—*Macaulay.*

American Eloquence.—As a specimen of the style of criticism in which some American writers indulge, we extract from an American paper the following, premising that the writer is a lady, and is criticising a magazine story. She says:—"I am so dazzled by a reading of the first number that I hardly dare express an opinion of it. So much splendour gives rise to distrust in my mind. Is there no redundance in all this blaze of glowing rhetoric—in this passionate outpouring of wildering words—in this sensuous eloquence of poetic fervour? I hope not; I hope all the glory of light in this unmetred poem irradiates from the illimitable sunstar. But the author must not blind us with unshadowed radiance—masses of lustrous blue, heaped upon the passionate eagerness of crimson, and that again upon the majesty of proud purple, floating tremulously upon the tradiate pulses of pure light, through whose fiery gaps and golden chasms sound in the heavenly distance stops of planetary music. Bnt the eye and the heart grow sick and languid with ravishment, and turn toward the distant grey, through whose solemn monotony shines the faint tremor of stars."

How to get Water on Dry Farms.—In travelling through the country, how many farms do we find destitue of water. Now, step up and ask why they do not dig a well—some will say "we are too poor;" others, "we are afraid to dig! Mr. So-and-so dug and found no water! others in this neighbourhood have dug and drilled, but their wells are very deep, and I would as lief haul water a mile above ground as from a mile below; besides, some of their wells cost as much as my farm is worth!" You can do

better than either. Dig a cistern at your house, barn or at the nearest ravine, or place where water will run in the spring, when the snow is melting. It is to this kind of a cistern I wish to call *special* attention, not a little egg of a thing, but a good large one, that will hold ten or fifteen cords of water.

Below I will give you my way of making a Ravine Cistern: First, determine upon the place; next, get all ready; then dig the size you want—(8 x 16 and 10 feet deep is the size of mine)—after digging the depth you want, you will see what your foundation is to rest on, and unless it is gravel, or rock, I would recommend digging the bottom out to a circle, and commence the wall in the center of the bottom, and build an arch upside down, to rest your walls on, then build the height you want your walls and arch over, if you have plenty of the right kind of stone, if not, plank it, cover over and let it settle and dry out before you plaster it, build a dam across the water run with the earth you dug out, so as to let the water settle some before you let it into the cistern; what little mud runs in will not injure the plaster any, and you can clean it out every time you get a chance.—*Correspondent of Wisconsin Farmer.*

Night Air.—An extraordinary fallacy is the dread of night air. What air can we breathe at night but night air? The choice is between pure night air from without and foul night air from within. Most people prefer the latter. An unaccountable choice. What will they say if it is proved to be true that fully one-half of all the disease we suffer from is occasioned by people sleeping with their windows shut? An open window most nights in the year can never hurt any one. This is not to say that light is not necessary for recovery. In great cities night air is often the best and purest air to be had in the twenty-four hours. I could better understand shutting the windows in towns, during the day, than during the night, for the sake of the sick. The absence of smoke, the quiet, all tend to make night the best time for airing the patient. One of our highest medical authorities on consumption and climate, has told me that the air in London is never so good as after ten o'clock at night. Always air your room, then, from the outside air, if possible. Windows are made to open, doors are made to shut,—a truth which seems extremely difficult of apprehension. Every room must be aired from without,—every passage from within. But the fewer passages there are in a hospital the better.—*Florence Nightingale.*

Lord Palmerston on Rural Affairs.—A foreign paper says that Lord Palmerston, in his 76th year, as lively and versatile as Rover, in the old comedy, recently delivered a lecture at Romney, very valuable for its practical truths, on the mode of building cottages, and how to reform untidy people by making their homes comfortable. He threw out valuable suggestions on the subject of practical farming, and showed that the stingy husbandman was a bad political economist who gave unremunerative wages to his laborers. In short, his Lordship was overflowing with practical wisdom, the fruit of long experience and observation.

The Old Farm House.

In a little grove of shade trees,
Stands a farm-house, brown and old
With a wealth of vines around it,
Gemmed with flowers of red and gold;
By the path that makes a circle
Of white sand around the lawn,
Grow sweet timothy and clover,
Rosy as a June-day dawn.

Around its door pale morning-glories,
Jump-up-johnies, dahlias, pinks,
Cluster—concentrated beauties,
Married by a thousand links;
Links of love, the works of nature's
Mystery of handicraft;
Links of glory, through which fairy
Argosies of perfume waft.

And the gate that swings before it,
And the fence as white as snow.
Stand on variegated cushions,
Which the sun-fire sets a glow;
Crowning them with many colours—
Yellow, purple, green and blue—
As if rainbows there had fallen,
Melted into rarest dew.

On its roof the greenest mosses
Catch the shadows from the trees;
On its sides red honeysuckles
Make their curtseys to the breeze;
And the ever-nervous willows,
Standing near the garden's bound,
Throw a web of shade fantastic
On the clover-mantled ground.

O'er the well an arch of grape vines,
Formed with heaven's directed care,
Chains the shadows to the water,
Making cool the summer air:
And a tiny church, its steeple
Piercing through a bower of leaves,
Is a sure and sacred refuge
Where the wren her carol weaves.

Fecundity in Domestic Animals.—The Ohio *Farmer* says that the English are devoting much attention to this, particularly as regards sheep, endeavoring to have ewes lamb twice a year and bring twins every time, and it thus alludes to the famous Chinese sheep which made some stir here some four years ago, (what the reason is we now hear nothing of them we do not know). In their live stock, the Chinese have especially studied fecundity, early maturity and aptitude. Their sheep are very prolific, three of them were imported into London, and

placed in the London Gardens, and the increase of lambs was so great that they became a nuisance. One ewe had five lambs, another four, and another three. In the United States, Captain Theodore Smith began with the Chinese Sheep, in 1854, and in eighteen months he had an increase of seventy-four, one of the ewes having had twelve lambs in fifteen months. He states that the sheep are large and handsome, and the mutton of superior delicacy.

Returning the Compliment.—"What a lovely woman!" was the exclamation of Lord Chancellor Eldon, upon passing a beauty, when pacing up and down Westminster Hall, with his friend, the Master of the Rolls, previous to the opening of their respective courts. "What an excellent judge!" said the lady when her sensitive ear caught the flattering decree of the Lord High Chancellor of England.

Dry Humour.—An Irish post-boy having driven a gentleman a long stage during torrents of rain, the gentleman civilly said to him, "Paddy, are you not very wet?" "Arrah! I don't care about being very wet; but, plase your honour, I'm very dry."

The total length of railroads in Germany, at the close of 1859, was 7,949 miles.

Cranberries may be profitably cultivated on swampy ground that would otherwise be useless. Solon Robinson states that, at Cape Cod, where the cranberry culture is carried to its fullest extent, swampy lands, that were worthless a few years ago, have now "a saleable value of $800 and $1,200 per acre."

Transactions.

County and Township Agricultural Societies.

Abstract of reports received by the Board of Agriculture in 1860, from County and Township Agricultural Societies, embodying the proceedings of those Societies for the year 1859, with the names of the officers of the County Societies for 1860.

ADDINGTON.

County Society.—Eighty-six members. Amount of subscriptions, $87; balance on hand from 1858, $121.98; deposited by Township Societies $220; Government grant, $479.98; Total receipts, $908.96. Paid Township branches, $484; paid to local committee of the Provincial Agricultural Association, $262; incidental expenses, $40; balance remaining in Treasurer's hands $122.96.

Officers, 1860. President, Geo. Howard, Amherst Island; Vice-Presidents, Thomas Price, Newburgh, and C. W. Miller, Switzerville; Secretary and Treasurer, J. B. Aylsworth, Newburgh.

TOWNSHIP BRANCHES.

Camden—Eighty-seven members; amount of subscriptions, $102; balance from 1858, $100; share of public grant, $120; grant from township council, $40; total receipts, $263. Paid in premiums, $226.50; incidental expenses, $33.08; balance in Treasurer's hands, $3.42.

Extract from Report.

"Camden is proverbially a stockraising township. The only imported breeds, however, were Durhams and Ayrshires, until Mr. Nimmo, in the fall of 1858, introduced a number of Galloways from Scotland. These cattle have improved very much in appearance since they were brought to this country. The cows are said to be superior to any other breed, for furnishing milk of a rich quality. The majority of the farmers of this township prefer the Leicesters, to any other breed of sheep. Others think the Southdowns are more profitable, and more hardy. A cross between the two breeds, that is, a Leicester ram with Southdown ewes, produces an excellent description of store or common farm sheep, large, broad-backed, hardy and well formed, with fine long wool; they seem to retain the good qualities of both breeds.

On account of the depredations perpetrated by the midge, the growing of Fall Wheat has become almost obsolete; some half-dozen farmers in the Township, however, continue to cultivate it. By sowing, not later than the last week in August, on well prepared ground, it will ripen early enough to escape the fly.

The average yield, last year, was twenty bushels to the acre of Soule's wheat. But we think the Fife spring wheat safer. If sown about the nineteenth of May, the kernel does not form until after the midge has disappeared. We would recommend a more extensive cultivation of "Indian Corn," as this crop leaves the soil in a good condition for Spring wheat, barley, or oats the next year. The eight-rowed yellow is the best sort, for this part of the country; it ripens early, bears a large kernel, and may be *cribbed* with perfect safety. It should be planted in rows forty-two inches apart, four grains in the hill, between the fifteenth and twentieth of May. There is more danger of corn being injured by frosts in the fall,

than in the spring. Peas are the most suitable grain to sow upon land that has lain three or four years to clover.

To show what may be done in root culture in this quarter, we give a statement from a man who has had much experience in this branch of farming: J. Lucas, Esq., employed a skilled hand, who commenced working on the twentieth of last April, in a field containing four acres of *sandy loam*, which had been sufficiently manured from the barn-yard. One acre and a half of this field was sown with carrot seed, and produced fifteen hundred bushels of the "large orange" carrots. One-fourth of an acre produced two hundred bushels of onions.

One acre and one-fourth under Swedish turnips, produced ten hundred and forty bushels; some of the largest bulbs weighing twenty-five pounds each.

One-half acre of turnip beets produced two hundred and sixty bushels.

The remaining half acre was planted with early potatoes, and produced one hundred and thirty bushels, which sold on Kingston market during the first week of July for $1 80 per bushel.

After the potatoes were taken off, the same ground was sown with "White Stone" turnip seed, and produced one hundred and seventy bushels; worth 25 cents per bushel.

This Township is, comparatively speaking, a new one. The soil is so various in quality, and in the state of its cultivation, that we cannot recommend any particular system of farming as the most advantageous. Every man ought to possess a knowledge of the properties of the soil he cultivates, and know how he should treat it to make it produce the desired crop."

Ernestown.—Seventy-eight members; amount subscribed, $80; balance from 1858, $26.34; Government grant, $96; total receipts, $202.34. Paid premiums, $140.36; paid for copies of *Agriculturist*, $36.50; incidental expenses, $25.48.

Sheffield.—Forty members; amount subscribed, $40; balance from 1858, $5; share of public grant, $44; total receipts, $89. Paid in premiums, $65.75; expenses, $15.25; balance in Treasurer's hands, $8.

EAST BRANT.

County Society.—One hundred and eight members; amount of subscriptions, $102; unclaimed premiums, $12; balance from 1858, $238.61; Government grant, $479.98; total receipts, (exclusive of deposit of Township society,) $832.59. Paid Township society, exclusive of deposit, $72; paid premiums at seed wheat fair, $18; paid do at Union Show with West Riding Society, $266.66; expenses, $145.09; balance in Treasurer's hands, $330.84. The Directors report that they held a seed fair on 20th August at Paris, which was well attended, and of much service in enabling the farmers to obtain their seed wheat. They held a show in conjunction with the West Riding Society at Brantford on 20th September, which was also well attended and successful.

Officers, 1860.—President, Daniel McNaughton; Vice-Presidents, Charles Whitlaw and George Stanton; Secretary and Treasurer, Wm. Patton, Paris.

TOWNSHIP BRANCHES.

Onondaga.—Sixty-six members; amount subscribed, $171.12; balance from 1858, $13.6; share of public grant, $72; grant from Township Council, $20; receipts at ploughing match, $6.84; total received, $283.02. Paid in premiums, $244; expenses and sundries, $33.15; balance in hand $5.87. The Directors report that "The show of horses and cattle, in autumn, was good, both as to variety and quality. In the sheep department, the entries were more numerous than in former years, and excelled any shown at any previous exhibition. The show of grain, roots &c., was excellent. The fall wheat this year was about an average crop, although injured in some localities by the frost. Spring crops, with the exception of hay, were excellent. With regard to the dairy productions and domestic manufactures, the show was a decided success."

WEST BRANT.

County Society.—Two hundred and fifty-seven members; amount subscribed, $259; balance from 1858, $607; deposited by Township branch, $64; received from East Brant Society, contribution to Union Exhibition, $266.66; grants from Municipal Councils of Town and Township of Brantford, $100; Government grant, $479.98; sundries, $9.25; total receipts, $1785.89. Paid for buildings for exhibition, and expenses connected with do, $307.86; paid for clover seed, $9.10; paid for copies of *Agriculturist*, $6.00; paid to Township branch, $120; paid premiums, $687; printing, stationery, services, and sundries, $454.25; balance in Treasurer's hands, $201.68.

Officers, 1860.—President, Wm. Thompson, Oakland; Vice Presidents, James Maxwell, Paris; Isaac B. Merritt, Scotland; Secretary and Treasurer, Duncan McKay, Brantford.

Extracts from Report.

The directors believe that the efforts made by the various agricultural societies of this Province have given of late years a vast impulse to the more skilful breeding of cattle—to a more careful selection of seeds and farming implements, and to a more methodical and productive system of cropping throughout the Province. They are confident too, that in no part of Canada have these efforts been productive of a better effect than in the west riding of the County of Brant.

A great part of West Brant was originally but very thinly wooded, and therefore presented peculiar attractions to agriculturists from the mother country, disliking, as many of them do, the dense forests of the new world. This part of the riding forms a portion of a vast tract of land, extending from the banks of the Grand River in a southwesterly direction, to the shores of Lake Erie—a tract of land which originally consisted of what are termed "oak plains," and which, contrary to the anticipations of many explorers of wild lands, has been found to possess a soil fertile and specially productive of the cereal crops. This soil is very commonly a rich loam, easily draining itself of superfluous moisture, and also remarkably easy of tillage. Lying chiefly on the geological formation which contains what are technically called "gypseous shales" it abounds with plaster mines in various parts chiefly along the banks of the Grand River. The product of these mines has been unsparingly and very beneficially applied to the clover crops of the district. This same geological formation (running nearly east and west) is the one, if we mistake not, upon which are found those large salt springs which have in the neighbouring Union proved to be a source of wealth and national prosperity, and which scientific research may hereafter discover to be more generally diffused throughout this part of Canada than has yet been supposed.

The appearance of the "oak plains" above mentioned formed, in their uncultivated state, a singularly pleasing landscape, partaking of a park-like character, and diversified in many places with heavy belts of woodland, particularly along the margins of the rivers and rivulets. The beauty of the country has perhaps not been impaired by the spread of cultivation, as many fine trees have every where been carefully preserved, and numerous flocks and herds give animation to the scenery.

The capabilities of the soil in West Brant have by no means been entirely neglected. This district has never been subjected to that scourging rotation of wheat after wheat, one year after another, by which so many of the fine lands of the Eastern States have been rendered vastly more productive of weeds than of profitable grain. From the first settlement of these plains, on the contrary, a system of thorough fallowing has prevailed, and when the soil has been sufficiently prepared a clover crop has almost invariably formed a part of the succeeding rotation. So successful has been the system pursued that the land is now gradually becoming, not more and more exhausted, but more and more productive of every species of crop. We have no hesitation in saying that 25 bushels of wheat per acre is now quite as common a yield as were 18 bushels per acre some 15 years ago. There are some fine tracts of what was formerly woodland, which lie chiefly on the south side of the county, of which the tillage has not perhaps been so systematic, but with an increase of cultivated land there has generally, we believe, taken place an improved system of culture.

Wheat is the staple crop of the district, and the one towards which the attention of our farmers has hitherto been most perseveringly directed. It has generally been found to be more profitable and certain when sown upon well cultivated fallows than when after any preparatory crop, such as corn, peas, or potatos. The decomposition of the clover sod and complete pulverisation of the soil have as yet been more depended upon than any direct application of manure. A fear of rust has hitherto deterred our agriculturists from manuring their wheat crops to any great extent. To guard against this evil has always been one of their greatest cares.

Several new kinds of wheat have lately been introduced, one of which, the Fife variety of spring wheat, is remarkably free from the attacks of this fungus, and almost all of them are more productive than the older varieties cultivated in the district.

Spring crops, such as barley, oats, and peas, are generally cultivated more or less by every farmer, but they do not any where, at present, constitute a crop sown in regular rotation, and are perhaps in Western Brant, generally more or less uncertain, and are frequently less remunerative than fall wheat

The hay crop of the riding is composed wholly of clover and timothy, with an admixture of the wild grasses. Timothy is the only artificial grass cultivated in the district, and there is great room for doubt whether it is precisely the most suitable one that could be found for the use of the Canadian farmer. Experiment has proved that it is very deficient in aftermath, and that its nutritive qualities are no higher than those of other grasses which yield quite as largely at the first cutting, and spring up much more vigorously afterwards. We may give the *alopecurus pratensis*, or meadow foxtail as an example. It is a grass very similar in appearance and nutritive qualities to timothy, but far superior to it as an after crop. We would suggest that encouragement should be given in future years, to the cultivation of new species of grasses. The rye grass (*lollium perenne*), the cock's foot grass (*dactylis glomerata*), red-top (*agrostis vulgaris*), sweet scented varnal grasses (*anthoxan thum odoratum*), meadow foxtail (*alopecurus pratensis*), different species of poa, and fescue grasses (*poa pratensis, poa nemoralis, &c., festuca pratensis, festuca durinscula, &c.,*) and others have been cultivated in the mother country. We observe that enterprising seedsmen have already imported the seeds of many of these grasses into this Province, though perhaps not of the very best in the list. But very little trouble is therefore necessary on the part of our agriculturists to give those grasses a fair trial. It has been found that a sod composed of different species of grasses gives a succession of nutritive pasture in the different seasons—one grass coming to maturity as another withers away. Different soils and different situations do also require different sorts of herbage. The red top (*agrostis vulgaris*) is specially adapted for wet soils, and the wood meadow grass (*poa nemoralis*) delights in shady woods.

We observe with much pleasure that the cultivation of green crops is gradually getting more and more into fashion in this district; though the breadth sown is yet comparatively insignificant, generally varying from one or two acres to eight or ten annually upon a single farm of from one to two hundred acres. A larger breadth of turnips has perhaps been sown during the past year than in any preceding one. The more ready market, and more remunerative prices now obtained for fat cattle and other live stock, no doubt render the turnip crop of more importance than formerly; and the now more convenient means of transport, and rapid increase of American and Canadian cities and towns, will still further stimulate the cultivation of green crops. The chief increase of the population of the Eastern States and of a large part of Canada, will no doubt in future years be in the large mercantile and manufactoring cities and towns, rather than in the rural districts; and this increase of consumers will, day by day, render our home markets more important, especially for the sale of beef, mutton, and pork. Green crops will therefore become every day more remunerative, and with the increase of their cultivation will follow an increased supply of manure, with which still further to increase the fertility of the soil. The cultivation of green crops may then too, at no distant day, supply a valuable course in an improved rotation of crops.

It is in vain, however, to attempt to raise large quantities of green crops without obtaining a large quantity of manure to begin with. Guano, bones, and other extraneous manures are therefore valuable to the agriculturist, and facilities for obtaining them are very necessary to him. Agricultural societies would therefore do well to place these manures within the reach of farmers in their various localities, and to encourage them to prove the efficacy of these manures by experiment. A merchant in the town of Paris, a year or two ago, ground several hundred bushels of bones, but failed, we believe, in disposing of them to such advantage as he had reasonably anticipated, owing to the want of a due appreciation of the value of this manure by the farming community. He proved, however, that the quantity of bones that might be collected for small expense within this district, was very considerable.

Liquid manure is another fertilising agent of great power. Many a farmer who is even accounted skilful in his profession, allows one or two thousand gallons of this valuable manure to be annually wasted—a quantity capable of producing some 4 or 5 thousand

bushels of Swedish turnips; this fact makes us feel how far, how very far, Canadian agriculture is yet short of perfection. Mr. Mechi, the very skilful and successful English agriculturist, is a strong advocate for a more extensive use of liquid manure—to it he attributes very much his success in agricultural pursuits.

Guano is a manure that can be obtained in almost illimitable quantities, and when of good quality, is most powerful in its effects, whether it be applied to turnips or Indian corn.

This latter crop, it may be observed, is by no means so largely cultivated in Western Canada as its merits would seem to warrant. There is hardly any one of the neighbouring States in which the number of bushels of Indian corn annually produced, does not nearly equal those of the wheat yearly grown in the same state. This fact would seem to show that our American brethren have become fully sensible by experience of the profits that attend the cultivation of this plant. Indeed when we consider the excellent fodder contained in its stalks, the sure return that it always affords for good tillage, the ease with which it is harvested, thrashed, and ground, we can only wonder why its culture should have been so much neglected in Canada as it has been. As food for man Indian corn always commands a ready sale—as food for the inferior animals, it has never been surpassed.

Of late years, as we before remarked, a great improvement has taken place in the breed of Live Stock. The superiority in quality of the sheep now bred in Western Brant over those bred some 10 or 12 years ago, is at once recognisable. Some persons believe, though we think without sufficient reason, that so much attention is not now bestowed on the breed of swine, as was some few years ago. Be this as it may, there can be no doubt that the general excellence of our breed of pigs is now certainly much greater than it was then. There may possibly be fewer fine individuals than there were 4 or 5 years ago; but yet the general average, we think, is quite equal to what it was at that time. Great attention continues to be paid to the breed of horses, and farmers are very ready to avail themselves of the advantages which the importation of any superior horses from the mother country may from time to time offer to them. The number of good carriage and agricultural horses now in the County of Brant is very large. A considerable improvement is visible in the quality of horned cattle, tho' we regret to have to say that less activity is directed towards improving their breed than exists with regard to either horses, sheep, or pigs.

A good breed of milch cows is much wanted in this Province; our importations of dairy produce from the United States are very large. A great saving to the country might yearly be effected by the establishment of more dairies amongst us There are already a few in this part of Canada, but their number might be very largely and very profitably increased. It is much to be desired that Western Canada should not be so wholly dependent, as hitherto, upon its wheat crop alone. This crop is somewhat precarious in its nature, and it is therefore to be wished that at least a part of the great expense now devoted to its culture, should be directed towards the raising of some other agricultural produce in its stead, of a kind less fluctuating in its returns and more equable in its prices. We may remark too, that a variety of produce acts somewhat as an insurance against risk. A blight upon wheat may be greatly compensated by a good yield of corn, a failure in hay by an extra productive crop of turnips, a light harvest of grain by an abundant return of cheese. On this principle, the rearing of live stock, the production of dairy produce and wool, the establishment of flouring mills and manufactories, should each contribute towards the national wealth. The human family, besides, is made up of members differing vastly in age, in strength, in mental talents, and we therefore require different employments suited to the different characters of each, so that the labours of all may be employed to the best advantage. We "want all sorts of employment for all sorts of men."

The profits of dairy husbandry cannot justly be estimated by the insignificant gains acquired under the petty system of dairy management that now commonly prevails in these parts. Very usually the weekly produce of some three or four cows is taken to a neighboring storekeeper, and is by him salted down along with other lots of greater or less excellence. When the whole quantity is sent to the large cities and inspected, it is of course found to be

in layers of every colour and of every quality; and the sale of three-fourths of a keg of good butter may be spoiled by reason of the admixture therewith of a small portion of an inferior quality. Were the produce of a greater number of cows packed up by the farmer himself in due season, kegs of similar quality throughout might be obtained, and these would command a higher and much more ready cash market. Dealers, in the event of a mercantile butter being packed up in large quantities in this district, would find it to their interest to purchase and collect this butter after the manner done in the neighbouring States; and then, for a time, contrary to the usual course of things, the greater the supply the greater would be the demand.

Cheese is a commodity which finds (as we before remarked of dairy produce in general) a large and ready sale in this province. To make good cheese requires perhaps more skill than is needed to make good butter; but again, the former article is commonly, we think, more remunerative than is the latter. Good cellarage, and convenient utensils, are necessary for success in dairy management. Of late years considerable attention has been directed towards the manfacture of efficient and economical churns, which have been constructed of various forms, and on various principles, and have at different times been more or less popular.

There is indeed no department in our agriculture in which the evidence of progress is more visible than it is in the mechanical. We everywhere meet with the application of machinery to new objects, and an improvement in the manner in which it has already been directed towards others. Reaping machines are now in universal use, abridging the labour of the harvest by almost one half, and threatening to displace the American grain-cradle, which was itself a vast improvement upon the European sickle. Mowing machines, too, are very prevalent. Thrashing-machines are year after year becoming more speedy and more efficient in their operations. Grubbers and cultivators have long been in use, though the anticipations of many of our agriculturists, that these implements would greatly supersede the use of the plough, have not been realised. For promoting a vigorous fermentation in the soil—for overcoming the *inertia* of our mother earth, no implement has yet been found superior to a well-constructed plough. There is a great difference, however, in the ease of draught obtained, and the excellence of work accomplished, by some ploughs beyond what is effected by others, and farmers would do well to make it their business thoroughly to understand this. As a means of making this truth evident, as well as in creating a higher standard for good ploughing, the annual ploughing-matches now so generally prevalent in this district, have been of great use. In the matter of fanning-mills, we speak with some diffidence, but we think that a considerable lessening of the labour now required in their use, and a more efficient way by which they might perform their work, is possible. We could wish to see boilers and steam apparatus for preparing food for cattle more generally used than they are at present. There is a great economy effected by cooking the food for various animals, especially of such as do not chew the cud.

It is very desirable that Canadians should be impressed with the necessity of planting trees for timber, and of preserving the young trees of their forests, so that in time the young timber may supply the place of the old. The present generation of land occupants have no experience of the want of timber, and experience is the most effectual teacher of the majority of mankind. There is a reality in its teaching which mere oral instruction can never supply. As a proof of this, apprenticeships are judged absolutely necessary for every trade and profession. Hence, too, the advantage of model farms—hence the necessity for premiums and bounties to stimulate and sustain infant enterprise, manufactories, &c. Our forest lands need not be altogether unproductive of every thing save wood: there can be no doubt but that they would afford a luxuriant growth of excellent pasture if they were sown with the wood-meadow grass, (*poa nemoralis*,) and it is reasonable to suppose that the coolness of shady woods would be very grateful to cattle during the summer heat. The sowing down of forest lands for pasture is now no novelty in the British Isles. Very many years ago, the late Duke of Athol proved that very fine cattle might be raised upon his Highland forests that had been sown down with the poa nemoralis for that purpose.

But we must not merely nurture our present woods, and increase in many places their number; we should also judiciously limit

and economise their use. It is impossible that the present system of fencing, so prodigal of valuable timber, can be much longer sustained, at least in the more advanced parts of the province. Hedges, stone-walls, or ditches, will shortly become an absolute necessity. The attention of our farmers cannot therefore too soon be directed towards the finding of a suitable substitute for wooden fences. The Osage Orange may be found too tender a plant for hedging purposes in this climate, the hawthorn of the mother-country has been found in some places of America to languish under the summer heat; but there can hardly be a doubt that some of the Canadian species of thorn—the cock-spur, or *cratagus crus-galli*, for example, would make an excellent fence. Its seeds, we believe, can be readily bought from our seedsmen, and therefore experiments to determine its value could not be troublesome.

The planting out of fruit trees has already taken a deep hold of the minds of our Canadian farmers, and it is certainly well worthy of all the attention that it has received. How many bushels of fine grapes, what vast quantities of plums and apples, might almost any Canadian farmer obtain at small cost? In this we might take lesson from the Russians, who inhabit a country in many ways similar to our own, and who prepare for the advent of winter by storing up a very large collection of prunes, raisins, apples, &c.

We observe that the more wealthy yeomanry are beginning to expend no small sums in the erection of permanent dwellings for themselves and their families. It is to be wished that the taste and convenience displayed in the erection of these buildings were commensurate with their cost; but in truth rural or even urban architecture in Canada is at a very low ebb. Congruity of style is commonly ignored, and too often glare and meretricious ornament is substituted for truthful elegance of construction, and propriety of character. We mean not to recommend lavish expenditure, for elegance and expense are by no means synonimous terms. The useful and the ornamental are inseparably united in the works of nature, and they are also commonly so in the best productions of art.

Our Annual Exhibitions exhaust a large part of our income, but they are also a great means of engaging public interest in favour of our Society. It is important therefore that those exhibitions should be made as attractive as possible. Novelty is an element very necessary for their success, and therefore the Horticultural Department is generally one of their most interesting parts. In this department the beautiful wild flowers of Canada, cultivated and justly admired as they are in Europe, might fill a small corner. In our native woods may be found hardy perennials, which for elegance, variety, and brilliant colours, may well compete with many of those sickly exotics which are now so much in favour. The Asclepias, Tuberosa, the Lithospernum Officinale, the Wild Lupine, and Flowering Raspberry, are very showy plants; the Uvularia, Cypripedium, (mocassin flower), and Arbutus, are of peculiar form and singular elegance; the Hepatica, Sanguinaria, Gentiana, Liatris, Gualtheria. Chimaphila, and Erythronium, are beautiful in themselves, and beautiful by contrast Many of them are rapidly becoming rare in this County, and may even become extinct within our borders. We no longer bruise the luxuriant foliage and drooping flowers of the "Ladies' Slipper" under our feet; our eyes are now seldom gratified by a sight of the tall blue flowering stalks of the Wild Lupine, the former ornament of our plains. These plants, and many others, have almost disappeared; their places are taken up by the clover and gramineous plants, but still no lover of the beautiful would wish those elegant mementos of former years to be altogether forgotten and unseen.

We would impress upon the farmers of West Brant the importance of cultivating well, rather than of cultivating much. Modern civilisation seems to shoot out, as it were, into two branches or distinct systems,—the one dividing the whole country into numerous small farms, which comfortably sustain a very dense population,—the other congregating the people into vast masses in the mercantile and manufacturing towns. The one system prevails in Belgium, which has a population of some 400 persons to the square mile, and under which system, crops are growing, incomparably greater (if we may believe late travellers) than those produced under the Scotch system of husbandry. The other system prevails in England, whose large hereditary estates, and busy hives of manufacturing industry, cannot, for very many years, have their counterpart in this colony. Nor is it perhaps desirable that they should. The riches of the teeming soil

have never yet been fully developed. Better perhaps, is it that the public domain, the sustenance of the nation, should be the patrimony of the many, than the inheritance of the few. Better perhaps is it to win from the fruitful earth the abundant fruits that spring from her bosom, than to work out a precarious and unhealthy existence amid the vices and temptations of a town. Upon a farm, there is continual and remunerative employment for every one, great or little. No stagnation of trade, no fickle change of fashion can render wheaten bread unacceptable, or put beef and mutton out of use. With ordinary prudence, almost every Canadian may literally "sit under his own vine and fig tree, having no one to make him afraid."

TOWNSHIP BRANCHES OF WEST BRANT SOCIETY.

BURFORD.—One hundred and thirty-two members; amount subscribed, $134; share of public grant, $56; receipts at show, $24.85; total received; $214.85. Paid in premiums, $146.50; expenses, $34.02; balance in hand, $34.33.

BRUCE.

COUNTY SOCIETY.—One hundred and two members; amount of subscriptions, $102; received from Township societies, $385; received from sale of seeds, &c., $155.55; Government grant, $479.98; total receipts, $1122.53. Paid Treasurer, balance from 1858, $11.50; copies of *Agriculturist*, $6.50; paid for seeds, freight, &c., $152.42; paid townships branches, $660; premiums, $131.25; expenses and sundries, $149.24; balance in hand $11.62.

Officers 1860. President, Wm. Withers, Kincardine; Vice-Presidents, Wm. Millar, Kincardine; William Blair, Pine River; Treasurer, Malcolm McPherson, Kincardine; Secretary, John Mosely, Kincardine.

Extracts from Reports.

This society held its seventh annual exhibition, at Kincardine, on October 4th, 1859. In consequence of the late depression in agricultural affairs, it was not quite so extensively supported as upon former occasions. The horses were of a useful and respectable sort, though rather low in conditi n. The cattle were good, particularly the young stock. The sheep, in point of quality were very superior to those shown in previous years. Hogs shewed a decided improvement. The show of grain was rather limited, but some excellent specimens were exhibited, both in fall and spring wheat. In the root and vegetable department, the specimens were not only numerous, but very superior in quality, considering the unfavorable weather they had to contend with. Turnips, cabbages, both white and red, beets, carrots, and onions, being enormously large. There were some beautiful grapes. Several sorts of cauliflowers, greens, &c. Messrs. McInnes, showed a most excellent specimen of pearl ash, manufactured at their works in Kincardine. In the mechanical department a great variety of articles were shown, which elicited very strong recommendations from the judges. The dairy department, produced some most excellent specimens of butter. The display of ladies' fancy work was also very superior.

The prevailing character of the soil in this county is, except a narrow space of light sand along the lake shore, a rich loam. The average value is from $25 to $30 per acre, and it is capable of producing very good wheat, oats, and peas; and when rather older in cultivation, better barley will not be grown in the Province, than in this county.

We cannot admire the generally adopted manner of cultivating and cropping the soil; as it is a certain way to bring a poor return to the occupier, and a most serious injury to the owner. It is this:—after clearing a piece of land, the first crop is generally wheat, (some times roots and then wheat), if the first crop be an abundant one, it is wheated again, and in some instances three crops of wheat in succession have been taken from the same piece of land—after which a crop of oats, such as it is, sowing a small quantity of grass seeds upon it. It is then allowed to remain in that state to graze or cut for fodder, for four or five years, in order that *nature* may revive it, and give time for the stumps to decay. The usual quantity produced is from 10 to 20 bushels of second rate wheat, and about the same of oats, per acre. This method of procedure is anything but respectable, or yet profitable, and only goes to show the ignorance of the operator. Farming, if made beneficial to the owner, must be acted upon in a systematic way and manner, and only under peculiar circumstances should that system be varied. In some parts of England the three-field system is used, in others the five-field, and in some few the seven-field system is preferred. But

permit us to say, that in this county the seven-field system should be used in the first instance, after which, the five-field. We think from experience the following routine of crops would give greater returns than any other which might or could be adopted. If the clearance is made sufficiently early in the season, say: 1st turnips; 2nd spring wheat; 3rd peas or oats; 4th wheat with clover or timothy; 5th clover or timothy to cut for fodder; 6th graze it with sheep or young cattle; 7th summer fallow, with a good dressing of manure, and then fall wheat. But if not sufficiently early for turnips, &c., say 1st fall wheat; 2nd oats; 3rd peas; 4th spring wheat, with clover or timothy; 5th for fodder; 6th for pasturage; and 7th summer fallow. Sowing peas for the 3rd crop will smother all sorts of weeds, and leave the soil in a good pulverized state for the wheat crop. After this we would use the five-field system, which is, 1st fall wheat, reserving a portion for barley in the spring; 2nd peas; 3rd spring wheat, with a top dressing of barnyard or artificial manure; 4th oats; 5th summer fallow. If barley is sown sooner than the 6th or 7th crop it generally makes too much straw, with a very slender grain, but after that time will grow a good stem with a plump grain. Clover should not be sown in the same field oftener than once in six or seven years; but if only once in ten years it will give a better return. By observing the above routine of crops the soil will be kept in a fresh luxuriant state, and with favourable seasons will not fail to yield an abundant increase. Early spring sowing should be attended to, which scarcely ever fails in giving beneficial results to the farmer, both with regard to the quality as well as the quantity of his grain. A great many of the farmers in this county can with pleasure bear ample testimony to the late abundant harvest. At our late exhibition several of them spoke of having had the splendid return of from 32 to 36 bushels of wheat per acre, the whole of whom attributed their success to early sowing. On the 26th of April, 1858, was sown 1¼ bushel of mud wheat per acre on land where there had been turnips the season before, from which was harvested 32 bushels per acre, of a very good quality. Also on the 30th of April, 1859, was sown some Glasgow wheat, 1¼ bushel per acre, the return of which was 36 bushels per acre. On the 3rd of May, after a slight manuring and spring ploughed, was sown 2 bushels of oats per acre, the return was 40¼ bushels per acre; the quality almost superior to any I have seen in Canada. In these instances we do not attribute our good returns to the extra quality of the soil, so much as to the early sowing and to the favorable season.

The wages of working men are rather higher than they ought to be; 3s. 9d. per day for the agricultural labourer, and 6s. 3d. for the mechanic, are more than can be given by the generality of settlers, and these high rates prevent the work of improvement from making that progress it would if wages were at a more reasonable standard. From the newness of the county (the oldest township not having been settled more than about ten years) great improvements have not yet been obtained in the breed of cattle. The clearances not being sufficiently large to afford good summer grazing, nor that comfortable in door accommodation which there ought to be, to protect them from the inclemency of the weather in winter. We think the Ayrshire breed, for dairy purposes, Durham for beef, and Devonshire for agricultural labour, the most suitable at the present time. A five year old ox, Durham half-breed, brought into Kincardine this season, weighed nearly 1000 lbs., and for quality of meat, would have been a very respectable acquisition to any butcher's stall in Canada. Sheep are only partially kept at present We think the Southdown the most suitable; fine wool, and good mutton, being taken into consideration. In hogs there is a very great improvement. A few years ago the hogs of this county were miserably bad; almost a disgrace to their owners; at the present time they are good. Several have been butchered weighing from 450 to 600lbs. each.

Horticulture is in rather a feeble state; the general attention being given to the clearing of the land for the production of grain. However, there are a great number of gardens well stocked with small fruit trees, currants, gooseberries, &c., and a great variety of useful vegetables. The planting of apple and other fruit trees, has been pretty well attended to, as we believe there are upwards of 300 acres of orchard ground at the present time in this county, and with favourable seasons, we may safely calculate upon having a good annual supply of this highly esteemed and useful fruit. The climate of this county quite agrees with the growth of all sorts of fruit trees; therefore

in the course of a few years the planter will receive an abundant return for the care and attention he has devoted to the training and protection of his orchard and fruit garden.

Buildings.—The old Log Shanties are disappearing, and giving place to neat and commodious Frame Houses. Large frame barns, with other suitable buildings are now adorning a great number of farmsteads in this county; thus enabling the farmer to preserve his grain from spoliation, and bring it to market in a fit and proper state for consumption.

With regard to Draining, we may say, it is in its very infancy, as until the stumps are gone it would be impossible to perform it as it ought to be, or with any certainty of repaying the farmer for his outlay. Lands that are sufficiently elevated for a clean draining of the surface water, should be formed into ridges of from 15 to 18 feet in width. If nearly a level surface, make ridges from 9 to 12 feet in width; give them three ploughings inwards; cut a drain up each furrow, from 18 inches in depth at the top end, to 30 inches in depth at the lower end of the field: each of the furrow drains opening into a heading drain, from which there should be out-falls at every 20 rods distance, otherwise the silt or loose soil might accumulate and fill the opening. Pipes of two inch bore, 12 inches in length for the furrow, and four inch bore for the heading drains, are now generally used in England. They are sold at $5.50 for the small, and $8 for the large size, per thousand. But where there is a firm bottom, we prefer the open horse-shoe shaped tile of 4 inches in width, by 6 inches in height, and 12 inches in length. They are sold at from $4.50 to $7 per thousand, according to size. Where the ground is generally wet, it will require deep draining, say from four to six feet in depth, if you can obtain a sufficient fall for the water; no other method will have the desired effect.

Excepting the frosts in June, we are happy to say, the crops did not suffer during the past year in any way whatever. We have not heard of the least symptom of the wheat fly shewing itself in this county, and hope that with proper care and caution, it may be prevented."

TOWNSHIP BRANCHES.

BRANT.—Ninety-seven members; amount of subscriptions paid, $80; balance from 1858, $6.75; share of public grant, $90; total receipts, $176.75. Paid in premiums, $85; expenses, $49.54; balance in treasurer's hands, $42 21.

Extract from Report.

Our grain crops are evidently improving, especially wheat, both fall and spring; the Glasgow seems to answer our soil and climate best, and we hope ere long to see the iron train passing our doors and bearing away some of our farm products to stand the gaze of an admiring multitude and the strict scrutiny of the judges at the Provincial Exhibition, when we feel confident that our township shall receive a full share of the laurels distributed on those occasions.

Oats, peas, barley, all excellent, but for the want of roads to get to market our farmers only raise sufficient for home consumption. Roots of every useful description are improving and cultivated upon rather an extensive scale throughout the township, but not generally as cattle food, with the exception of turnips, of which there is a plentiful supply. Mangels, beets, parsnips, carrots, &c., grow to an enormous (almost incredible) size, as does also every variety of garden vegetables. A cauliflower, cut on the 26th September, weighed on the 1st of October (after being divested of all superfluous leaves, &c.,) 9½lbs.; the *flower's* diameter was 17 inches.

The dairy department at our annual show was very creditable and the many splendid samples of delicious butter, cheese and maple sugar betokened the right sort of housewives.

(*To be continued.*)

Editorial Notices.

THE HANDBOOK OR ANNUAL RECORD OF HORTICULTURAL AND AGRICULTURAL STATISTICS—By Wm. P. Sheppard, Proprietor of the Horticultural Agency, New York. This, although we suppose its principal object is to advertise Mr. Sheppard's establishment, contains a large amount of interesting and useful information. Amongst the contents are a chapter on gardening, giving some valuable hints on that important art. A descriptive catalogue of culinary vegetables and other garden plants, with directions for the culture of each; this extends over about 70 pages. New Plants of 1859: a list of such new plants as have come particularly into

notice during the year; extending over 25 pages. New Flowers of the Year—15 pages. New Fruits. List of Agricultural and Horticultural Patents, issued from the United States Patent Office, during the year 1859. List of Horticultural and Agricultural Journals. Horticultural Directory, being a list of the establishments of the Nurserymen, Seedsmen, Florists, &c., in the United States and Canada, with the principal foreign establishments doing business in this country, occupying some 30 pages.

Blackwood's Magazine for July—New York: Leonard Scott & Co. Toronto: H. Rowsell. This is an excellent number of Blackwood. The articles are: The Secret History of the Russian Campaign of 1812—Sir Robert Wilson; Captain Speke's adventures in Somali Land—Part III.; Poetry; Judicial Puzzles—The Campden Wonder; The Royal Academy and other Exhibitions; Norman Sinclair—An Autobiography—Part VI.; An Election in France; Erinnys; The Reform Bill and the Tory Party.

The Transactions.—A pressure of occupation has prevented the requisite attention being given to the usual abstract of the Societies' Reports. It is commenced however in the present number, and will be continued as rapidly as circumstances will permit.

The Half Volume.—We beg leave to repeat that the *Agriculturist* will be supplied for the half year, commencing July 1st, at 25c per copy, or 9 copies for $2.00. The half volume will consist of 12 numbers of 32 pages each, and although not printed as a distinct volume, will yet form a good sized book of 384 pages. The back numbers can be supplied from the 15th May, at 30c. per copy to the end of the year.

Nova Scotia.—We regret to notice that "The Journal of Education and Agriculture for Nova Scotia" is insufficiently supported to pay expenses, and that the editor and publishers have determined to suspend the periodical for a few months in order to ascertain whether the Teachers and Farmers are really desirous to have an organ to represent their cause. We hope that our friends the Blue Noses will bestir themselves a little, and not allow so well conducted and useful a journal to die out for want of adequate support.

To Correspondents.—Communications for the *Agriculturist* should come to hand a week before the date of the number in which they are to appear, as the paper must go to press several days before the nominal date of publication.

Markets.

TORONTO MARKETS.

July 28, 1860.

There has been but little grain offered in the market during the past week. In other articles of farm produce there has been a more liberal supply and ready sale. The latest quotations are as follows:

Fall Wheat—$1 25 a $1 38 per bushel.
Spring Wheat—$1 12½ a $1 17 per bushel.
Barley—50c a 55c per bushel.
Oats—32c a 34c per bushel.
Peas—50c a 55c per bushel.
Flour—Extra Superior, $6 50 a $6 70; extra, $6 a $6 20; fancy, $5 25 a $5 60; superfine No. 1, $5 15 a $5 20; superfine No. 2, $4 90 a $5; fine, $4 20 a $4 25.
Hay—new, $9 a $14 per ton.
Straw—$5 a $6 per ton.
Wool—29c a 30c per lb.
Beef—first-class cattle, $5 50 per 100; second class, $4 50 a $5; inferior, $3 50 a $4.
Sheep—$3 50 a $4 each.
Lambs—$2 each.
Pork—$6 per 100.
Hides—$5 50 per 100; Tallow, $7 50 a $10.
Sheep & Lamb Skins, 40c each.
Potatoes—new, plenty at 30c a 50c per bushel.
Butter—fresh, 13c a 15c; tub, for shipment, 10c a 11½c per lb.
Eggs—13c a 15c by retail per dozen.
Chickens—25c a 30c per pair.
Ducks—30c a 35c.

NEW YORK MARKETS.

New York, July 27.

Flour—receipts 3,691 brls; market heavy, but prices without important change; sales 10,400 brls at $5 to $5 10 for Superfine State; $5 10 to $5 30 for Extra State; $4 90 to $5 05 for Superfine Western; $5 05 to $5 25 for common to medium extra Western; $5 25 to $5 45 for inferior to good shipping brands round hoop Ohio.

Canadian Flour—dull and drooping; sales 480 brls at $4 95 to $5 for Superfine; $5 05 to $7 50 for extra.

Rye Flour—steady at $3 50 to $4 20.

Wheat—receipts 11,042 bshls; market without striking change. The scarcity of freight still restricts the export demand; sales 35,000 bshls at $1 21 for Racine spring; $1 20 to $1 21 for Milwaukee club; $1 20 to $1 25 for winter red Western; $1 46 for prime white Indiana; $1 30 for new amber Southern.

Rye—quiet at 80 to 81c.

Barley—nominal.

Corn—receipts 31,815 bshls; market little firmer with small supplies; sales 22,000 bshls. at 61 to 62c for common to prime mixed Western.

Oats—steady at 37c to 40c for Western, Canadian and State.

Pork—heavy and lower; sales of 700 brls at $18 87 for old Mess; $18 to $19 12 for new Mess; $12 50 for Prime; $14 to $14 25 for new Prime.

Beef—steady and unchanged; sales 325 brls.

Hams—$11.

MARKETS AND CROPS IN ENGLAND.

(From the *Mark Lane Express* of July 9th.)

"To be able to report a brilliant week after such protracted wet and cold weather, is really a relief and a subject for gratitude. Haymaking has gone on extensively, a portion is already assured, and some carried with a better result than at one time was expected; the raised temperature previously to the dryness having much improved the crop, which may now turn out an average. But those few, who in despondency commenced cutting in the wet, have been obliged to force off their new gatherings at damaging prices. With respect to corn and roots, there has not been so decided an improvement, the soil, especially heavy lands in low places, being apparently water-logged, though bound on the surface. Potatoes have no strength; neither wurzel. Wheat very slowly advances on the best soils, and looks hopeless on the worst, as is the case with Barley; and there is no time now for a tillering or increase. But this makes it the more important that the fine weather should last till harvest is over, as an abundant yield under the most favourable circumstances is impossible. Yet the markets have shown the usual sensitiveness under a clear sky, and have universally given way fully 1s. per quarter. The rates at present are beyond speculative demand, and the quantity with better though not heavy foreign supplies being beyond millers' present wants, whose policy at such periods is always reserved. Foreign markets, too, have rather fallen back, upon the dull advices hence, excepting Odessa, which had been sent up by English orders; and perhaps there is no country but France that will be less than an average. There the rates have given way 1s. 6d. to 2s. per qr.; but the general lateness certainly places the universal yield in greater jeopardy. As respects the devastation of locusts in Russia it turns out to be but trivial, and there is every prospect that the South will prove to be the richest year in corn known for a long period. In Spain all places are well reported excepting Barcelona, and rates at Seville have been falling fast. In America Wheat has been buoyant, and some quantity exported; but Flour was rather lower. No arrivals off the coast reported since June 29th to July 6th. The business reported was as follows: the late seasonable weather had the effect of reducing the sales of only 8 cargoes. Maize arrived—a cargo of Port Lagos at 32s., 2 American at 32s. and 31s. 9d. per 480lbs., and 2 Odessa at 33s. per 492lbs. Barley on passage—Danubian at 25s. 6d. per 400lbs., ditto (due in London) at 24s. 6d. per imp, qr.; Danubian per steamer at 25s. 6d. per 400lbs.

The sales of Wheat noted last week were 87,951 qrs. at 58s. 5d., against 59,350 qrs., in 1859. The London averages were 56s. 8d. on 1,532 qrs. The imports into the principal ports of Great Britain for the week ending 29th June in Wheat and Flour were equal to 96,989 qrs.

Improvement in Tanning.—The improvement in tanning hides and skins of all descriptions, just patented by Charles L. Robinson, of Wankesha, Wis., consists in the employment of terrajaponica—purified by a very simple process—in combination with certain salts of magnesia and potassa, whereby both upper and sole leather of superior quality are produced.—By this process tanning operations may be conducted altogether independently of the oak and hemlock barks of our forests, in any situation where plenty of water can be obtained.

Ayrshire Cattle.—Patrick R. Wright, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale are liberal.

Full Pedigree of all animals—U. C. Stock Register.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten orders and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, AUGUST 16, 1860. No. 16.

SEED TIME.

The work of gathering in the products of the grain fields will scarcely have been concluded when the farmer must again commit to the earth the seed for, in the greater portion of Canada West, the most important crop of the next year, viz: fall wheat. And on the manner in which this is done will depend mainly, subject to those influences over which we have little or no control, the result at next harvest. The due preparation of the land will have been attended to during the past few weeks or months, according to circumstances, and on fields which are to be sown in good season little will now remain to be done but to deposit the seed in the soil. Manure may of course still be applied, or a final deep ploughing given before ridging up, if necessary, but it would be better that these operations should have been attended to before the present date. It is an advantage in case of dry weather, to have the last ploughing, or ridging up, done some time before the seed is to be sown, because by that means the soil becomes consolidated, and in a fine pulverised state favorable to the attraction and retention of moisture from the atmosphere. And the seed on being deposited the proper distance below the surface is at once closely enveloped in fertile, moist earth, favorable to its immediate vegetation, and it is thus enabled to make a good root and establish itself thoroughly before the advent of winter. For depositing the seed, the drill is the best means, irrespective of economy in seed and evenness of sowing, because thereby the seed is placed at the proper depth, and in the soil in the best condition to receive it, and the ridges left between the rows are an advantage as a protection to the plant against winter killing. Where there are difficulties in the way of using the drill, the seed may be covered in with a light plough or gang of ploughs, and the ground left without harrowing. In dry weather, which not unfrequently happens about the last of August and beginning of September, if the ridging up is left till just before sowing, the effect of the ploughing is to dissipate what moisture the soil contained, and the seed being then harrowed in, a great deal of it lies among coarse dry lumps, instead of being buried in fine mould, closely pressing it on every side; and the consequence is that it does not vegetate till after a drenching shower of rain, if it ever vegetates at all, and half perhaps of the best growing season is thus lost, and half the seed thrown away.

The question of seed is an important one. It is established that if we can get wheat to come into ear and ripen some ten days in advance of the usual time, we have thereby a much better chance of escaping the depredations of the midge. The *Mediterranean* is proved to be an early ripening variety, and is much sown on that account in the State of New York and in some parts of this Province. The old *Mediterranean* is a red bearded wheat, and is of inferior quality to our best white wheats, its early maturing being its great recommendation. The *white Mediterranean* is a bald white wheat, lately introduced from Europe, and is as early, and of much better

quality than the Mediterranean. The *Early May, White Kentucky,* and other Southern varieties from Kentucky, Virginia, Indiana, Missouri, Southern Illinois, &c., have been tried with very favorable results, in some cases, as to their early ripening qualities, in the adjoining States and this Province, while in other cases the experiment has been attended with disappointment. We think there is sufficient proof that Southern wheat will ripen earlier in a northern locality than the native sorts, but in order to test the matter fairly, the farmer should be sure that he obtains the genuine article, and that of a good variety. Whatever kind of seed is sown care should be taken that it is of an unmixed sample, and free from chess, cockle, smut, or other impurities. The quantity of seed is also to be taken into consideration. When sown pretty thickly, the autumn growth of leaf assists in protecting the root of the young wheat against the winter, the plant has less room and less need to tiller largely in spring and early summer, is consequently less exposed to attacks of rust and midge, and ripens a few days earlier. Although in extremely favorable seasons, a larger head and plumper berry may sometimes be obtained from a thin seeding, yet the majority of experiments show that a moderately thick sowing is more to be depended upon for a good crop. We should therefore recommend on ordinary ground not much less than two bushels of seed to the acre, or in some cases as much perhaps as two and a quarter or two and a half bushels. On very fresh and fertile land, particularly if sown with the drill, a bushel and a half, or a bushel and three pecks may perhaps be found sufficient.

As to the time of sowing, something of course depends upon the season, and upon peculiarities of soil, situation, and other circumstances. Before the appearance of the fly, any time from the 1st to the 15th, or even the 20th of September, was considered in good season. Now, however, in districts where the fly is prevalent, it will be prudent to begin sowing as early as the last week of August, and finish not later than the first week in September. In any case early sown wheat has a better chance of establishing itself well before winter, so as to meet the difficulties of that season, and escape rust and other evils, than late sown.

Some other things require attention at this season. In thrashing grain, care shonld be taken to store or stack the chaff and straw properly, and not allow it to be wasted by exposure to the weather or being trampled under foot by the cattle, as is too often the case, and the want of it felt severely afterwards. Outstanding stacks of grain or hay should also be looked to, and if not already properly thatched and secured from accident, attended to immediately.

Some attention is still requisite to the crops of parsnips, carrots, turnips, mangels, &c., to thin them out properly, keep down the weeds and hoe the ground. An immense improvement may still be produced in a root crop by proper attention to these operations.

Lambs, if not already weaned, should be separated from their dams without loss of time. Let the lambs be put on sweet grass, with a sufficient bite, out of hearing of the ewes, so that they may not be disturbed by their bleating, and fall back in condition. The ewes should be put on a pasture till they are dry, when they should be put on good grass.

The Provincial Exhibition.

The Exhibition has been appointed to take place on the 18th, 19th, 20th, and 21st September. It will therefore be only about a week earlier in the season than it has been held on several previous occasions. The preparations are progressing at Hamilton in the most satisfactory manner, and we have every reason to believe that this will be one of the most attractive exhibitions ever held in Upper Canada. We trust that all, farmers, manufacturers, and the public generally, will join heartily in the determination to present on this occasion to the inspection of His Royal Highness the Prince of Wales and his distinguished suite, such a display of the agricultural and industrial products of the country, as every Canadian will have reason to be proud of, and such as will convey abroad a truthful and adequate impression of our resources. Prize lists and entry forms will be sent to all persons who have been in the habit of exhibiting, and all others may obtain them of the Secretaries of Agricultural Societies or Mechanics' Institutes. Intending exhibiters are requested to make their entries as soon as possible.

Editorial Correspondence.

[No. 4.]

THE FRENCH EXHIBITION—ROYAL AGRICUCTURAL SOCIETY'S SHOW OF ENGLAND.

Canterbury, July 7th, 1860.

My communications are all more or less of a necessarily hurried, and, I fear, desultory character. In the midst of shows and rapid travelling one can scarcely find time and opportunity for making rough notes of the thousand things that come under observation. I must say a few words more in addition to what was stated in my last in reference to the late National Exhibition of France.

The department of agricultural produce was like the rest of the exhibition, very extensive, comprising nearly four thousand entries, arranged in a tasteful and commodious manner for general inspection. It was impossible to witness this splendid display of French industry, including not only the productions of France but also of her colonies, without a proportionate impression of her great varied resources. The produce of the Colony of Algiers occupied a very extensive space, and constituted a marked and interesting feature of the show. In addition to excellent specimens of the roots and cereals common to Britain, were to be seen numerous productions of the sunny south, embracing not a few of such even as are of a purely tropical character. It is said that there are nearly three million of acres in this country devoted to gardens and orchards, the varied produce of which might be readily understood at the exhibition. Apples, pears, cherries, plums, hops, &c., characterise northern France, while the grape, almond, olive, maize, saffron, and other productions belong to the central and southern portions. Silk is produced in large quantity, and mulberry trees for feeding the worms are planted by the road side, as well as in large fields, occupying tens of thousands of acres. Beet root is extensively cultivated for sugar, the number of manufactories being upwards of three hundred, producing from forty to fifty thousand tons annually. This sugar is met with at all the hotels. beautifully pure and white, but it is deficient in saccharine matter, as compared with cane sugar. A warm sunny summer is essential to the full maturity of the sugar beet, which has not been found to answer well in England for making sugar, except in particularly hot summers. In Canada it would probably succeed, but whether our sometimes severe frosts in the fall would not injure the saccharine properties of the root, and interfere injuriously with the power of crystalisation, is a matter, at least, doubtful. The numerous wines of France formed a prominent object in the Palace of Industry; and although there is but little probability that among the working millions of England they will displace the national beverage of malt liquors, yet under the new treaty their general introduction among the people of Great Britain, must to some extent diminish the consumption of ardent spirits, and thus exert a favourable influence on the health and morals of the community. All I could learn on this subject is in accordance with my own limited observation, that the ordinary use of French wines, is in that country compatible with general sobriety. I observe in the last Report of the Bureau of Agriculture of Canada, an article containing some interesting and encouraging information on the culture of the grape; whether, however, an extensive culture for the purpose of wine making can be profitably carried out in Canada, carefully conducted experimennts on a sufficiently large scale can show. I saw the other day some excellent specimens of wine produced from some rather extensive vineyards in New South Wales, some sixty or seventy miles west of Sydney.

One thing particularly strikes a stranger in France, viz. the vast amount of small farms, or rather holdings. Two-thirds of the land is divided into lots varying from five to twenty acres each, consisting in fact of long and narrow strips, on which there is neither capital nor scope for the employment of improved modern implements and machines. The compulsory division of land so unrestrictedly carried out in this country presents an insuperable barrier to the general improvement of its agriculture. It appeared to me that on most of these diminutive holdings there was not, as in Belgium, a deep and thorough cultivation, with a husbanding and systematic application of manure. The tools and implements were mostly of the rudest kind, and the occupiers, though evidently tidy and industrious, o not command anything like the same amount of the first necessaries of life as do the majority of English or Canadian laborers. I saw some farms of larger dimensions; a few in the vicinity of Paris from two hundred acres and upwards, well cultivated on a system

of rotation, with improved implements and live stock. These latter, however, cannot be procured for next to nothing: good utensils as well as superior cattle are necessarily costly productions, and for any one to succeed in farming, whatever country he may dwell in, he must reconcile his mind to the necessary outlay.

In the support and management of these kinds of exhibitions the difference between England and France is very great: the latter depends upon the Government for almost everything; the former for nothing. The recent show it is said cost the French Government some sixty thousand pounds sterling! With such an expenditure from such a source, in one of the most beautiful situations of that beautiful metropolis, the Exhibition must necessarily surpass in point of ornament and decorative splendour such as are dependent on voluntary contributions. The Emperor is the mainspring of all these great movements; he evidently comprehends the wants and high destiny of the country which he wisely and beneficially governs.

I omitted to state that I paid a visit to the great national farm and school of Grignon, about twenty miles from Paris, with which I was much delighted. Particulars must be reserved for a future communication. No unprejudiced person, I think, can visit France and its metropolis, even for the briefest period, without forming a high respect for a people so eminently distinguished for art and science, literature and arms. I heard the most friendly feelings expressed both towards England and Canada. For the sake of peace and human progress may such professions be properly and sincerely reciprocated!

THE ROYAL AGRICULTURAL SOCIETY'S EXHIBITION IN CANTERBURY.

July 10th.

The twenty-third Exhibition of this great national society is now being held in this ancient and picturesque city. To-day the public were admitted on the payment of half-a-crown, but the number has not been too great to interfere with a careful and minute examination of the articles and stock by individuals. Hitherto none but those officially connected with the show could find admittance, except by special order. The Implement yard, however, was open to the public on the payment of a crown. The grounds, consisting of about thirty acres, are beautifully and conveniently situated within a mile of the city, close to the railway, and the arrangements appear to be very complete. The division of labour in this respect has been carefully studied, and the varied machinery of management seems so far to work noiselessly and efficiently. Here may be seen the aristocracy of the land working with tenant farmers and mechanics in conducting the operations of this magnificent Exposition of the agricultural and mechanical industry of England; and the police and subordinate officers are men in their stations of superior intelligence and character. As all entries for the exhibition finally close on, I think, the 19th of May, some six weeks before the show takes place, a detailed catalogue is prepared and published, and all animals and articles are strictly arranged in a systematic manner. With a catalogue of this kind of every article occupying its own corresponding place, it is easy to ascertain at a glance, the name and residence of its owner, and such other particulars as most people desire to know. I cannot see why something of this sort could not be done with our Provincial Shows in Canada, provided the entries were made more explicit and that they were made absolutely to close a few weeks before the time for holding the exhibition.

The present show is not so large as its two immediate predecessors; Warwick and Chester being in a more central position, surrounded on all sides by a dense population, while Canterbury is situated in the South-east corner of the island. The falling off, however, is not very great, especially when it is considered that twelve or thirteen principal firms manufacturing agricultural implements and machinery, in consequence of an unfortunate misunderstanding or quarrel with the Society, declined exhibiting. These manufactures have on previous occasions covered several acres with their productions, carefully and often tastefully arranged, and they constituted unquestionably an important and attractive feature of the exhibition. After all many of the principal tools and machines of these intractable manufactures were in the show, and exhibited by agents, who in this country are generally the purchasers.

The following analysis will give the reader a definite idea of the extent of the exhibition. In *Shorthorns* the number of entries (and in all departments what was entered was exhibited, with only a very few exceptions,) was 155;

Herefords, 43; *Devons*, 39. Other established breeds, 22; *Sussex*, (special prizes) 26. HORSES —Stallions for agricultural purposes of different ages, 50; Mares and Foals for agricultural purposes, 6; Two year old Fillies for agricultural purposes, 11. DRAY HORSES—Stallions, 14; Thorough-bred Stallions for getting Hunters, 7; Brood Mares for breeding Hunters, 8; Brood Mares for breeding Hackneys, 2; Stallion Ponies, 2; Mare Ponies, 6. *Leicester Rams*, 53; Pens of five shearling ewes of the same flock, 6. *Southdown Rams*, 65; Pens of five Down shearling ewes of the same flock, 10. *Kentish or Romney Marsh Rams*, 20; Pens of five shearling Ewes of the same flock, 4. Long wooled sheep, not qualified to compete as Leicesters or Kentish Breeds, *Rams*, 56; Pens of fine shearling Ewes of the same flock, 7. *Shropshire Rams*, 58; Pens of five shearling Ewes of the same flock, 9. Short wooled sheep, not qualified to compete as Southdowns or Shropshire sheep—*Rams*, 62; Pens of five shearling Ewes of the same flock, 9. Kentish or Romney Marsh breeds, (special prizes)—Pens of five 2 and 3 years old Ewes of the same flock, 7. PIGS —*Boars* of a large breed of any colour, 17; Boars of a small white breed, 16; Boars of a small black breed, 11; Boars of a breed not eligible for the preceding classes, 9. The breeding *Sows* were subjected to the same classification and amounted to 48. In the Implement Department the number of exhibitors was 206, who exhibited four thousand articles, including a great number of large and expensive machines, the prices of some reaching to several hundred pounds. Besides there were special prizes offered by the Canterbury Local Committee for Hops and Wool, in which there were 50 entries.

The show of Live Stock was, taken as a whole, of exceeding fine quality, and in this respect quite equal to previous meetings. Among the various breeds of horses were animals of very superior merit; among which stood not least for farming purposes, the Suffolk Punch. The *Shorthorns* still maintain the high position they have so long occupied, although the class of *Herefords* was both numerous and of excellent merit. As a class the latter were very uniform, indicating high and systematic breeding, and in addition to the premiums, quite a large number received commendations from the Judges. The first premium for shorthorn Bulls, of two and not exceeding six years, has again been won by Col. Towneley, of Burnley, Lancashire, by "*Royal Butterfly*," a brother of the celebrated "Master Butterfly," that was sold for 1200 guineas a few years ago and sent to Australia. "Royal Butterfly," is allowed by competent judges who have seen both to be on the whole superior; he is near three years old, of a roan colour; sire, "Frederick"; dam, "Butterfly"; sire of dam "Jeweller." Fabulous prices, it is reputed, have already been offered by foreigners for this extraordinary animal, which is attracting the attention of large numbers of visitors. I heard it stated yesterday on good authority, that the English breeders will not be so ready in parting with their first rate animals as formerly, but will retain more of the best blood for themselves. The second prize was awarded to "*Prince of Prussia*," a truly princely animal, turned 3 years, owned and bred by Mr. James Dickinson, of Wigan, out of "Amelia" by "Pope's Eye." It is a little singular that both these premiums should go to Lancashire, a county much better known for its cotton manufactures than for agriculture. In Pigs too this part of England takes some of the best prizes. I have neither time nor space to go into particulars with reference to any department of the show; and this is the less necessary since the *Mark Lane Express*, and other English papers, will, in a few days, publish, after a thorough examination by competent judges in their several departments, a full systematic report. The *Devons* constituted a beautiful class of animals; several in point of symmetry and breeding seemed to have reached, what perhaps in practice is hardly attainable—perfection. The *Sussex* cattle did not muster in such large numbers as might have been expected in this part of England. Some fine specimens however were present, indicating much higher breeding than I had been accustomed to observe among this class some years ago. They were evidently derived from the Devons, which in color and general appearance they much resemble; but they are larger and coarser; like the Devons the oxen make excellent workers.

The sheep as a whole were excellent. *Cotswolds* were in large numbers, and their great size and fine appearance attracted much attention; the same remark will apply to the *Leicesters* and *Shropshire* beeds, but the *Kents* or Romney Marsh appeared to be below par. This impression might arise from their comparing

somewhat unfavorably with other and superior breeds placed in juxtaposition. They are, however, a very valuable breed, adapted to the exposed situation in which they are principally found. The pure *Southdowns* formed a most attractive class, and Jonas Webb of Cambridge again appeared in all the strength of former years. He completely carried off this year all the honors both from the Duke of Richmond and Mr. Rigden, who have to be content with the commendation of the Judges. This result is both instructive and encourging. I well remember hearing the Duke say many years ago that he would continue to persevere till he obtained the first position against Mr. Webb; he did so and succeeded. His Grace will again have occasion to put into requisition the same noble qualities.

The Implements and Machines were tested last week, either in the trial yard or the open field. I felt particularly interested in the steam ploughs, and the reapers and mowers, which are recent introductions in this country, particularly in this district. The steam ploughs were put to work in a field near the show grounds, and from the stiff character of the soil and great inclination of the surface they were subjected to the severest test practicable. Four ploughs started, but two of them were soon found inadequate to the work, for want of sufficient power. Fowler's plough performed its work easily and thoroughly, turning over three furrows of six inches deep up the hill and four down. His balance four-furrow surface plough, made by Ransomes & Sims, was propelled by a 12 horse set of steam cultivating apparatus. The 12 horse engine has a double cylinder, fitted with self-moving and reversing gear, windlass, and tender, anchor, 800 yards of steel rope, headland ropes, 20 rope porters, two snatch blocks, and field tools complete. The price of this apparatus complete is £699, and the plough adapted to it, £81. There can be no doubt but this machine is capable of ploughing in a workmanlike manner, the most obdurate soil. The rise in the upper part of the field was 1 foot in 7, and the work had to be performed directly up and down the incline. The other plough was Robs & Co.'s; the apparatus much lighter and cheaper; it turned two furrows up the hill and three down; the work although effectually done was in appearance inferior to that of Fowler's machine. The Judges awarded £90 to the latter and £10 to the former. These engines propelled grubbers and scarifiers with equal facility, and are adapted to most field operations. On the vast prairies of the West they must be particularly advantageous. To make a thorough steam plough or cultivator is perhaps, the most difficult problem in agricultural mechanics; but the result has now been accomplished, if not in a state of perfection, at least in a practicable shape. Burgess & Key's mower, an improvement on Allen's of New York, obtained the prize and performed its work in heavy meadow grass admirably. Two strong horses and one man cut an acre per hour, the price is £30. The same firm manufacture a good reaper, but the test was not thorough, it would only be applied to an inferior crop of green rye.

I happened to fall in with Mr. Stone, of Guelph, in the cattle yard to-day, and we inspected the Horse and Shorthorn classes together. To-morrow there is to be a trial of Ploughs, with a view of testing the old Kentish turnrise plough so long and highly thought of in this county. Other ploughs it is expected will be put into requisition. The practice of ploughing in this county is to turn the furrow almost completely over, and to break it for a seed bed. To-morrow and Thursday are shilling days, and vast crowds of visitors are expected. The weather is fine, but cool and cloudy for the season. I have experienced only one or two summer days as yet, and they could not be said to have been hot. The crops on stiff, wet lands are very indifferent; and the prospect on the whole is not cheering. I am glad to hear favourable accounts from Canada.

G. B.

Pleuro-Pneumonia in Cattle.

From an article in the *Irish Country Gentleman's Newspaper*, by Mr. A. Henderson, Author of the "Practical Grazier," we extract the following remarks on a system of treating cattle affected with Pleuro-Pneumonia, by sweating by means of covering with wet, heavy blankets, &c.

"Mr. Lord states, that under the following treatment—eighteen animals out of twenty have recovered—whilst nineteen animals out of twenty have died under the usual application of depletion, sedatives, counter irritation, &c. "Remove the animal into a large, airy bay, or stall,

take a couple of thick horse-rugs, or thick covering, saturate them with the coldest spring water, and place them on the body of the animal, put five or six other rugs or thick coverings upon these, and a long wrapper round over all to keep them close to the body, also two girths, one behind the shoulder and the other before the udder. A long girth fore and aft to keep the clothing from shifting, is advisable. Immediately after adjusting the clothing, give four ounces of spirit of nitre ether in a little cold water, a wine bottle, with water and ether up to the shoulder; in half-an-hour or three quarters give another dose; then place a bucket of cold water before the animal, in some cases it will drink two or three buckets, in a short time the animal will perspire; keep clothing on for five or six hours; then remove the cloths, and put two dry rugs on with wrapper and girths; keep them on for a few days, and cast gradually. The diet should be a little thin gruel or bran mash. If the bones are torpid, give one pound and a half of raw (boiled oil is bad for cattle) linseed oil. In the majority of cases, this is not necessary. If the animal is not considerably relieved in ten or twelve hours, repeat the application and doses. Sometimes this has been requisite two or three times, but usually the first only is necessary." From the anxiety of removing from the minds of the public in general, the idea that no cure exists for pleuro-pneumonia, I have far exceeded the detail of such a subject. From the varied success as quoted by men of experience, it might be deemed superfluous stating my experience of the disease, but as my accidental discovery, which I once thought quite *original*, supports Mr. Lord's method of cure, of which I most approve, as also to fulfil my promise, to give the public my experience of such a disease and leave them to judge of it along with others stated by men of great experience.

In the outset of attempting a cure in 1845, when farming extensively in the neighbourhood of Edinburgh, where the disease was occasionally very prevalent and fatal, in which I shared equally with my neighbours; but not being thoroughly acquainted with the nature of the disease, I contented myself by following the common routine of attempting a cure, as practised by my neighbours, and so generally by cow-doctors, and others of practical experience, which was first to bleed and give physic to cool the blood and keep the bowels open, and, in some instances, to blister the sides, in which case I was sometimes successful, but more frequently otherwise; consequently I chimed in with the prevailing opinion, pronouncing the disease incurable, and contented myself with submitting to the difficulties and losses with which I was doomed, along with others, to contend; but a favorite grey mare was attacked with the disease, on which I bestowed extra attention; although adhering rigidly to old remedies, but found my patient sinking fast under all exertions, and after feeding with gruel, and anything nourishing, she became so much reduced and feeble, labouring under all the most deadly symptoms imaginable, until at length all hopes of recovery were extinct; in short, it was recommended by all who witnessed her agony to put her out of pain, but this I would not submit to, and before leaving her at night, which I was convinced would be the last that I would be troubled with her, and by way of showing my last respect to a great favorite, I covered up her stretched-out form with some large horse-sheets, and so left her to die—which I thought inevitable. I went next morning, at break of day, expecting to find per sufferings ended, but to my utter astonishment and gratification, when I opened the door of the loose box, she lifted up her head and looked round, as much as to say I am a little better. And upon examination I found the body to be covered over with a gentle sweat, no doubt caused from the load of clothes with which she had been covered the night before, so I renewed my exertions by keeping up the perspiration; and finding it somewhat difficult to accomplish, I had recourse to wetting a blanket in cold water, wringing out the water, then covering her up with it, and put some dry blankets over all, which had the effect of raising a great steam, which I continued by the same process to keep up for twenty-four hours, after which I only kept her warm with dry clothing, and as I found her daily improving, lessened the burthen of clothes; and by giving her an occasional drink, and continuing to give gruel and other nourishing similar food, she, in a little time, made a complete recovery. I, however, kept her slightly sheeted for some weeks, whilst at grass, putting her always under cover at night, and keeping her in the house all day, if either wet or cold. I need scarcely say that I was not only proud of the recovery of a favorite animal, but of the idea of having, though accidentally, discovered a remedy for so mortal and once-thought incurable disease.

But in order to test the validity of such cure, shortly after, two others of my cattle took the disease, when I commenced by bleeding and physicing, which had, apparently, such a good effect at first, that I thought all that was further necessary was to keep them in a well-ventilated, warm house, but soon began to find that the disease was beginning to increase, until, at length, they both became very ill, when I immediately had recourse to the treatment here noticed of my *favorite*, when both made a most rapid recovery—so I was still prouder than ever; and as the disease in the county, after a great many deaths, began to recede, I regretted not having an opportunity of testing my *accidental discovery—cold water cure*—a little further; however, I was soon gratified in this respect by the disease again breaking out in a neighbour's stock, but rather assuming a mild form, and the owner being a person rather inclined to leave nature to itself, administered

nothing but physic, when a number recovered, but some died; I recommended my cure to him, but being void of faith and strongly tinctured with procrastination, he put off from time to time until his loss by death, in milch cows and young cattle, became very serious. He had two of the young ones left, which he actually turned out to die in the field; on seeing this I begged the two animals from him to again test *my* cure, to which he most readily consented, at the same time assuring me that it was a vain attempt. I put them into a house and commenced with the same treatment as before, when they very slowly got better; but by perseverance and strict attention, I again effected a cure, to the owner's utter astonishment. I have thus again laid before the public a statement of facts, which I am confident will prove themselves to be so, if carefully acted up to, and persevered in; should any one of my readers be so unfortunate as to have patients to test the experiment by trying the *cold water cure*. From all that is here advanced in support of the *cold water cure*, may be gathered that the same idea may strike two different persons, in or about the same time, as myself and Mr. Lord; but as my cure was not, at least, laid before the public when Mr. Lord wrote upon the subject, I cannot impeach him with being a copyist. Also, that if the wet blankets, &c., are not a cure of themselves, they at least, prepare the animal, by perspiration, so as to make medicine, &c., act quickly, so necessary in this disease, which is generally accompanied with all the pores of the body being shut, as also very much *hide bound*."

Report of the Maine Commissioners on the Cattle Disease.

We have received the report of the Commissioners appointed by the Governor of Maine to obtain full information as to the nature and extent of the disease, the method of treatment, the manner of infection, and what measures may be deemed necessary to prevent its spread, or arrest its progress. The information contained is equally important in this country. The Commissioners were Messrs. S. L. Goodale, A. Nourse, E. Holmes. They rendered their report on 21st June. We give the following extract. After sketching the history of the introduction and progress of the disease in Massachusetts, full particulars of which have already appeared in the *Agriculturist*, the Commissioners proceed:—

"As with all other contagious diseases, both among men and brutes, some individuals are found to be less susceptible to the contagious influence than others, and some are not affected by it at all; and doubts have arisen in the minds of several European writers on this point, the weight of opinion being, however, very strongly in favor of its contagious nature; but we submit that the facts in Massachusetts are such as *to prove it beyond a reasonable doubt.* We find the disease to be not only contagious, but insidious and deceptive, malignant and fatal. *Insidious*, inasmuch as it often creeps upon an animal so stealthily that it is difficult and sometimes impossible to fix with any accuracy the date of the attack. *Deceptive*, in that, in animals which have had the disease and may be fairly presumed *from appearances*, to have recovered, one or both lungs have been found, on slaughtering them, to be little else than a mass of disease.

That it is both malignant and fatal, unhappily needs no proof. Nearly one thousand animals have already fallen victims, either to the disease, or to efforts made with a view to its extirpation, and more than an additional thousand are either known to be sick, or, from having been exposed, are under the ban of suspicion. It is not true that the distemper is universally fatal, for not a few survive which have been its subjects; but it is not yet positively known that even *one* has been absolutely *cured.* They often come to eat well, drink well, and thrive tolerably;—thus exhibiting the ordinary characteristics of health, and yet, a post mortem examination has, within our own observation, shown how utterly fallacious were all these indications in such a case.

Regarding the term of incubation and of propagation, or the length of time which elapses between exposure and the appearance of disease; and also during what period the animal is capable of conveying the disease to others, we greatly regret our inability to arrive at definite or satisfactory conclusions. In some cases the disease is apparent within ten days after exposure; in other 20, 30, 60, 90 days or even more, are supposed to elapse. One case is reported where the exposure was seven months previous. The more usual period appears to be not far from twenty days. When the capability of the animal to convey disease to others begins or ends, we have no knowledge. This is a most important point, but all we *know* is, that it may and does do so before any symptoms of illness appear; and, as the lungs of some which have been slaughtered exhibit evidence of the later stages of the disease in one portion and of the earlier in another, there seems reason to fear that the term may sometime be indefinitely prolonged.

As already remarked, this lung murrain, or by whatever other name it be called, is of the most insidious nature. Any disturbance of the animal's health is rarely noticed until the disease is fully established, and effusion into the chest has made some progress. The ordinary rule, that not much ails an animal until it refuses to eat, does not hold good with this disease. The early symptoms are so faint and obscure as to

excite neither anxiety nor attention. By and by the animal gets a dull and dejected look; if at pasture, it may be found in the morning apart from the herd—the back arched—the fore legs rather wide apart—the hair staring—a little uneasy and don't eat well; but later in the day it looks better, joins the herd and eats as usual. A slight, but *husky* cough is occasionally heard, and sometimes quicker breathing, as if from extra exertion. If a cow, the milk diminishes, accompanied with heat and tenderness of the udder.

As the disease progresses the eyes look duller, the head is lowered, the nose protruded, the cough more frequent and husky, the appetite lessens, rumination is suspended, the limbs and surface cold, the skin tight over the ribs, the spine becomes tender, and pressure upon it, or between the ribs, produces evident pain. As the disease approaches an unfavorable termination, the breathing becomes fearfully laborious and is accompanied with mucous and sometimes with grunts, the eyes sink, extremities cold, the mouth is covered with froth, the strength fails and the poor beast falls and dies; or, if the animal is to recover, the severity of the symptoms abate, it looks better, eats some—if a cow, the milk returns, the hair becomes sleek, etc.

Percussion and auscultation furnish the most reliable means of judging, in the living animal, of the state of the disease. Upon striking with the ends of the fingers upon the affected side, a dull sound is usually elicited, proportionate to the consolidation of the lung, or to the presence or absence of fluid in the cavity of the chest. Upon applying the ear to the sides of the chest, one or the other, and sometimes, though rarely, both, are found to be affected. The various sounds cannot be easily or exactly described, but a practised ear will judge with great accuracy between the natural murmur of healthy lungs, and the different sounds recognized in the several stages of the disease.

In what manner, and through what channel, the disease enters the system—whether it makes its attack directly upon the solids, or begins by corrupting the blood—these, and other kindred points, are, at present, matters of pure conjecture.

With regard to treatment, little of a satisfactory character can be offered. The severity or mildness of the attack and its termination, whether favorable or fatal, may, not improbably, depend more upon the susceptibility of the individual, and upon the amount or intensity of the contagion taken into the system, than upon any treatment bestowed. Whether subjected to a course of medication, or trusted wholly to the recuperative powers of nature, some will recover in whole or in part; but we have little reason to believe that any will so recover as to be secure from a second attack, or become *able-bodied or sound, or valuable for the ordinary purposes for which domestic animals are kept.*

Considering the probable unsoundness of those which survive; bearing also in mind the exceeding importance of active and healthy lungs, and the expense necessarily involved in the treatment and isolation of those which are lost as well as those which are saved, the conviction is forced upon us, that attempts to *cure* this disease will rarely, if ever, pay. We may remark, however, that *counter-irritation*, by diverting diseased action from the vital organs to the surface, promises beneficial results, and the application of highly stimulating liniments, blisters, setons, and the like, is understood to have been of more service than aught else.

The appearances after death vary greatly, but there are usually extensive adhesions; consolidation of a portion of the lung tissue, marked by a *peculiar marbled appearance*, is one of the most striking and uniform accompaniments of this disease. In some cases an immense cavity is found in one of the lungs, and, enclosed in that cavity or cyst a cheesy substance or lump, having no attachment to, or connection with, the adjacent lung. In others, the process of detachment had not been fully completed. Some lungs were found to be so hypertrophied as to weigh three or four times as much as in health, and in one the estimated weight was from fifty to sixty pounds!

As, in our present relation to this disease, we deem prevention to be of incomparably greater importance than either a knowledge of the symptoms attending it, the treatment best adapted to mitigate its results, or the morbid appearances presented after death, we will not longer dwell upon these, but rather urge the importance of arousing at once to a proper appreciation of the magnitude of the threatened calamity. If once it becomes naturalized among us, we may never again expect immunity from its attacks. When once fairly established, either here, or elsewhere, its seeds may remain, even after apparent subjugation, and whenever the necessary conditions present themselves, it may break out again with fearful violence.

Our only safety lies in keeping clear of it, and we urge the utmost vigilance upon every individual and upon all competent authorities to see that *no animal be admitted into the State, either directly or indirectly, from any quarter where there is reason to believe that the disease exists.*

We are prepared to say, that absolute and perfect non-importation is the only preventive measure worthy even of consideration. We have no security whatever against the introduction of the disease, so long as animals from neighboring States are permitted to be brought in, whether directly or indirectly, by land or by water. The temptation to get rid of animals which have been exposed is very great; the absence of any indications of disease gives great facilities for doing so, and apparent cheapness may be a fatal lure to the unwary purchaser.

The question of extirpation is, happily, not

yet before us. Should it arise as a practical matter, we do not hesitate to recommend the instant slaughter of all animals affected with the disease, and the complete and perfect isolation from other cattle, of all animals reasonably suspected of having been exposed to the contagion.

Massachusetts is wide awake. Her efforts to save herself and sister States from an unparalleled calamity, are worthy of the highest praise. The only regret is, that the efforts at extirpation were not commenced earlier. Had the Legislation been more prompt, and the first appropriation ($10,000) been made a month sooner, it would in all probability have sufficed to extirpate the disease utterly. As it is, $25,000 have been expended, and it is now proposed to use $100,000 more if needed."

Pleuro-Pneumonia in N. Y. State Six Years Ago.

The following is the important letter of E. P. Prentice, Esq., of Mount Hope, near Albany, N. Y., addressed to the *Country Gentleman*, to which we referred in the *Agriculturist* of July 16.

Messrs. Editors—I notice that a good deal of alarm is felt in different parts of the country about what is called the cattle disease.

From the diagnosis given in the papers, I have no doubt this is Pleuro-Pneumonia, with which I had some acquaintance a few years ago. If it is the same, my observation and experience may be of some service to those suffering now.

It was introduced into my stock in the fall of 1853, by one of my own cows, which in the spring of that year I had sent down to my brother in Brooklyn, to be used during the summer for milk. She was kept entirely isolated throughout the summer, and in November was sent up by the boat. There were no other cattle on the boat at the time, nor could I learn that she had come in contact with any in passing through the streets on her way to the boat, and she certainly did not after leaving it, until she mingled again with her old companions, all of whom were then and long afterwards perfectly healthy. After she had been home about two weeks we noticed that her appetite failed, and her milk fell off; she seemed dull and stupid, stood with her head down, and manifested a considerable degree of languor.

Soon her breathing became somewhat hurried and with a very decided catch in it; she ground her teeth, continued standing, or if she laid down it was only to jump up again instantly. Her cough increased, and so too a purulent and now bloody discharge of mucus from her mouth and nostrils. The excrement was fetid, black and hard.

In this case we twice administered half a pound of epsom salts, and afterwards a bottle of castor oil. Very little but a temporary effect was produced by these doses.

The symptoms all increased in intensity, strength diminished, limbs were drawn together, belly tucked up, &c, until the eighth day, when she partly layed and partly fell down, and never rose again. In a post-mortem examination, the lungs proved to be gorged with black, fetid blood, the substance of them to be thickened, soft and pulpy. The pleura and diaphragm also showed a good deal of disease and some adhesion.

This cow on her arrival here was put into her usual place in the stable, between others. She remained there for two or three days after she was taken sick, before we removed her to the hospital.

In about three weeks from the time she died, one and then the other of those standing on either side of her were attacked in the same way, and with but two days between. This certainly looks very much like contagion, but my attention had not before been called to this particular disease, and to suppose inflammation or congestion of the lungs contagious, was so opposed to my pre-conceived notions that I did not even then admit it, and these animals were suffered to remain with the others until their own comfort seemed to require the greater liberty of open pens.

One of them was early and copiously bled twice, while epsom salts were administered both by the stomach and with the injective pump. The other we endeavored to keep nauseated with ipecacuanha, and at the same time to keep her bowels open by cathartic medicines. All proved to be of no avail. They both died, the one in ten and the other in thirteen days. Before these died, however, others were taken sick. And thus later I had eight sick at one time.

The leading symptoms in all were the same, with minor differences, and so too was the appearance after death on examination.

Of all that were taken sick (sixteen) but two recovered, and they were among those we did the least for, after we had become discouraged about trying to cure them. In all the last cases we made no effort at all, but to keep them as comfortable as we could.

In one case the acute character of the disease changed to a chronic, and the animal lived six or eight weeks, until the whole texture of the lungs had become destroyed. She had become much emaciated, and finally died with the ordinary consumption.

At the time the first case appeared I had a herd of thirty-one animals, all valuable Ayrshires, in fine condition and health. In all the first cases I had a veterinary surgeon of considerable celebrity and experience, and every ordinary approved mode of treatment was resorted to and persevered in. The last cases, as before intimated, we only strove to make comfortable.

After I paid the third or fourth forfeit, I began to wake up to the idea that the disease was in a

high degree contagious, whether I would have it so or not, and that my future security was in prevention and not in remedy. I therefore separated all the remaining animals, in no instance having more than two together, and generally but one in a place.

All were removed from the infected stables and put into quarantine. Isolated cases continued to occur for some weeks after this, but the spread of the disease was stayed, nor did a single case occur after this, which we did not think we traced directly to previous contact.

It is impossible to account for the first case of which I have spoken. But as the cow in that case was put into a sales stable in New York while waiting for the boat, though there were no cattle then present, yet I have supposed it not unlikely that diseased animals had been there, and had left the seeds of disease.

But account for this case as we may (and I have no doubt it is sometimes spontaneous,) I feel convinced it is very highly contagious, and that the only safety to a herd into which it has been introduced, is in *complete* isolation, and in this I feel, as convinced, there *is safety*.

My cattle were not suffered to return even to the barnyard, or to any part of the cattle barns, except as invalids were sent to the "hospital" to die, until late the next fall—i. e. the fall of 1854. In the meantime the hay and straw had all been removed, the stables, stalls, cribs, and all, thoroughly scrubbed with ashes and water, fumigated and whitewashed with quick lime. I have had no case since, and am persuaded I should have avoided most of those I had before, if I had reasonably admitted the evidences of my senses in the second and third cases.

E. P. Prentice.

Mount Hope, June 14, 1860.

Irrigation of Water Meadows.

The following article, in description of what is known as "Bickford's System of Irrigation," is copied from the "Bath and West of England Agricultural Journal." It will be read with interest by those in this country who have lands capable of being treated in this way:—

In commencing the construction of a water meadow a carriage gutter is cut along the line of the highest ground. This main gutter is for the purpose of taking the water from the brook, or other source from which it may be derived, in order to feed the smaller or irrigating gutters —in fact it acts the part of a main artery. This main gutter need not be laid out by the level. A rapid inclination should be given to it, according to the nature of the ground, and the quantity of water which can be made available. Where it can be had, a fall of 2 inches in a chain is convenient, but if need be a less rapid fall will answer the purpose. The width of the main carriage gutter should be about 18 inches, and the depth from 6 inches to 1 foot. The dimensions must, however, in some measure be regulated by the quantity of water to be conveyed along it; the gutter diminishes in size as it approaches its termination, so that it runs out to nothing.

Immediately below the carrier should be cut a set of small, tapering gutters. The office of these tapering gutters is very important, as they secure the even apportionment of the water over different sections of the field, adjusting the supply in the way of a self-acting valve. Sometimes the end of a carrier itself performs this office, and is tapered accordingly.

The Small Irrigators.—A series of smaller gutters are cut below the main carrier (at different levels,) in the same general direction, in order to catch the water as it overflows from the carriage gutter through the small taper gutters. The distance between these gutters greatly depends on the shape of the ground; where it is undulating and uneven, more are required. These small gutters ought to be laid out quite level. I say quite level, subject, however, to a qualification to be named hereafter. The water as it flows over the land is collected in these small gutters, and as they are practically level, they again distribute the water evenly over the surface, when they become filled; were it not for these small gutters, the water would get into little streams and flow down along the hollows, instead of the ground being all equally covered, especially where the land has never been ploughed or levelled. I mentioned that the small gutters ought to be level—this, however, in practice, must not be carried out with mathematical correctness; in crossing any hollows, the gutter should be kept rather higher, say an inch on 33 feet run, or the water will gather in the hollow and overflow too fast at these points. On passing along projecting ground, on the other hand, the same difference should be made in the contrary direction, viz: an inch lower than the strict level, in order that that portion of the ground may receive its due share of the water.

Outlets, Driers, or Drawing-Off Gutters.—It is of quite as much importance to get the water off quickly as it is to get it on evenly. To effect this, gutters are cut in the direction of the inclination of the ground, *i. e.* in the exact same line along which the water would flow, if left to itself to run: if the gutters take any other direction, swerving too much to the right or the left, they will cut off the water from some of the land on one side or the other.

The Drying Gutters also act as Feeders.—The downward gutters also serve the purpose of feeders. Were it not for these transverse feeding gutters, the land nearest the carriage gutter would always have the first water, and thus receive the greatest benefit, and the lowest portion of the field would come the worst off. In order

to obviate this, the feeders or transverse gutters are cut, from the carriage gutter at the top, across all the level gutters to the lowest. By placing stops in the proper places, the water can be conveyed directly from the carrier to any of the catch gutters, without passing on the intervening land, so that the lowest part of the field can be watered first if thought desirable.

Cleaning out of Gutters.—Gutters cut on the old system require to be cleaned out every year just before the watering season, and this for two reasons. First, because they become choked up with rank grass and hinder the free flow of the water in a horizontal direction, which flow is essential to the success of the level or nearly level carriage and level feeding gutters. Secondly, because the sides of the gutters are trampled down by the live stock all through the summer; thereby spoiling the even edge of the gutter, and rendering the distribution of water irregular. In order to put the old gutters into a good state, a man is employed to clean them out and trim them up, at an expense of about 2s. 6d. per acre. The man so employed leaves a heap of refuse about every 20 paces, and these heaps have to be removed before the meadow is laid up for hay. The gutters consequently become wider every year, till at last the width is so inconvenient that they have to be filled up at great expense and relaid. If the system explained in this paper be adopted, it is recommended that fresh gutters should be cut every year: there is no difficulty in doing this, it is only necessary to follow the line indicated by the original ones, cutting one year above and another below the original gutter. The expense of cutting the gutters out afresh is very trifling, about 1s. or at most 2s. per acre; the sods which come out of the new furrow are placed in the old one by its side and trodden in, and thus all the ground is made good. The cutting of new gutters every year has the advantage of entirely preventing the growth of coarse grasses and weeds along the gutters. In very porous or peaty soils the water is apt to sink away rapidly in the main carriages; on such land it is advisable to cut the carriers wider and not so deep. If clay or road scrapings can be procured within an easy distance, I should recommend a thin coating being put along the main carriers. I have known instances of its being done to great advantage.

The Quality of Water.—Before laying out meadows for the purpose of being irrigated there are several important questions which ought to be taken into consideration. A proper supply of water is of course the first and most essential point, and even if this can be had, it must not be taken for granted that all waters will have a beneficial effect when used for the purpose of irrigation. It is found that water flowing from the surface of "wet peaty" or "black moory" soils is positively injurious; water also which contains large quantities of iron is hurtful. But streams in which water cress flourishes, and those containing mossy stones, are for the most part good for irrigation. Water which flows from springs, such as are never found to freeze, is most invariably well suited for irrigation; in fact water from those which are termed "warm springs" in most cases produces the earliest grass. I presume this is owing, in a great measure, to the temperature of the water being higher than ordinary water, and thus keeping the ground warmer. Drainage and ditch water should be conveyed into the meadows if possible. Water, especially after heavy rains, in passing down to the drains, not unfrequently takes along with it some of the manuring substances contained in the soil; if, then, this water is allowed to escape, these manuring matters are wasted, but when it is used for irrigating any meadows below, these valuable ingredients are again deposited, so that what is lost in one field is gained in the other. In mountainous districts much of the water which forms bogs at the foot of hills and the head of valleys, may be turned to account. If a deep drain can be run up into the subsoil, the bog may be tapped, and some excellent water may generally be drawn off before it has become contaminated by the peat. In fact, the cases in which underground draining fails to yield useful water for irrigation, may be regarded as exceptional.

Time for Watering.—It is a good plan to commence watering the meadows early in the season—not later than the beginning of November. From this period up till February the water should, as a general rule, be kept on about six days and off three days. This, of course, will partly depend on circumstances, such as the supply of water, weather, &c. In frosty weather the water should not be removed from that portion of the meadow on which it was at the time the frost set in; it should, if possible be kept gently moving, and as long as it does so, the shallower it is the better. If the ground becomes covered with a sheet of ice, the water may then be turned off. After February, the meadows require rather more attention, and the water should be more frequently removed as the weather gets warmer. Care should be taken not to allow the grass to get a white scum upon it, for if this is not prevented, serious mischief is done, the grass, instead of improving, will grow less. In hot weather the water ought to be changed every day. The land selected for a meadow should either be naturally dry, or made so by draining. If the latter plan has to be resorted to, the drains should be cut deep, otherwise the water will soak into them too quickly; and the water must not be laid on the same year as that in which the draining is done. Where practicable, as is the case on farms where the meadows are situated below the farm premises, it is a good plan to bring the water along by the farm steading, in order to catch any washings from the yards, and thereby to enrich the quality of the water used for irrigation. These washings, or liquid manure, are often, even at

this improved period of agriculture, allowed to run to waste, whereas they might be made to put money in the farmers' pockets, by producing early and plentiful crops of grass. The water in brooks, after heavy rains, is generally thick and muddy; this is chiefly owing to the washings of the land above, and as there is generally a considerable value in the finely divided particles of mineral matter thus held in suspension, the opportunity should not be lost for giving the meadows the benefit of it. The first crop of grass, in water meadows, is generally fed off, the meadow should then be carefully looked over and the water turned on again. As the weather becomes warmer, the water, as I have before stated, should be kept on for shorter periods. The second crop is mown, in most cases, as it is found dangerous, at least for sheep, to water and feed again, especially if the weather is warm, owing to that fatal disease, called rot, being apt to be produced amongst them. The two great advantages of water meadows are that they produce a large quantity of early food in the spring, which is so valuable for ewes and lambs, and that they yield heavy crops of hay, after the first crop of grass has been eaten off, and this, mark, without any manure being applied. The cost, a most important question, according to the system of laying out water meadows, is very moderate. The late Mr. Pusey, whose name is familiar to every agriculturist, and who was always among the first to improve his estate and confer a benefit upon his tenants, had a large quantity of grass land converted into water meadows; the cost, including every expense, with hatches across the brook, did not exceed £2 per acre. In many places the cost would be little more than half as much. I think, therefore, looking at the small outlay and the great advantages to be derived, that landlords and tenants ought to look well around them, and let no opportunity escape where such a system can be carried into effect.

Cranberry Culture.

The following observations by Nathan Briggs in the *Barnstable Patriot* will be found to answer many of the inquiries which are made in regard to cranberry culture.

The Choice of Location.—First, cranberries will grow on high moist land, and sometimes produce well, but their proper place is low and springy, or wet land. The best place, however, is a peat-bog and swamp musk.

Preparation of the Ground.—First make the surface of your ground as even as possible, and nearly level, with a slight inclination towards a drain, if you have one, in order that it may be easily flowed, and no ponds remain after drawing off the water. This may be done with any material. There should then be put on this level surface, about four inches in thickness of swamp muck or peat, which should be again covered with about three inches depth of loose sand, free from grass or its fibres, and also from clay or stones. It is not important what the color or quality of the sand, if it be not adhesive, and is free from roots and grass. Clay is not good.

Time of Planting.—From the first of April to the middle of June, on wet ground, continuing through the summer to plant, if convenient, and it is wished. In dry land those planted in summer sometimes fail on account of drought and heat. Those set late lose a year's growth, and may as well be set in spring if the land be not too wet.

Manner of Planting.—The form of planting which has resulted in the most rapid advancement of growth and production, is to scatter whole vines upon a mud or peat surface; then press them into the mud with your foot, and scatter over them light sand, about one inch in depth. Patches planted in this manner seem to be a year ahead of those planted in the ordinary way. The general plan, however, is to set them in hills at eighteen inches apart. Take a pointed stick, say four inches in thickness, through which at eight inches from the point insert a guage rod eighteen inches long, which serves to govern the distance from one hill to another. With this pointed stick puncture the ground in uniform rows, insert into these holes a small handful of vines, and press the mud around and among them, spreading them about as much as need be.

Quality of Vines.—Vines should be procured from meadows which have borne well, and of good fruit, as the best way of knowing good bearers. There are several species, such as egg-shaped species, bell-shaped, and cherry-shaped. The former are most approved, and are said to be four or five weeks earlier.

Cultivation.—The cranberry needs little cultivation. Having your land properly prepared as before stated, and properly ditched, and clear of roots and grass, it may require the first year a little hoeing among the vines. After the first year, it would be likely to do as much injury as benefit, by disturbing the young fibres, which are now thickly set. It is better after this, to pluck the weeds by hand, put them in a basket, and carry them off. After the second year, let them alone. The third you will get a fair crop, the fourth will probably be the best. It is not yet ascertained how many years they may do well. Fair bearing is considered one bushel to a rod; there have been instances of one barrel to the rod. Rushes, and bunches of weeds and grass may at any time be cut out.

Flowing.—Flowing is not absolutely necessary. More than half the meadows which I saw were not flowable. If flowable, the water may remain on all winter, and let off in March. It should be let on about the 20th to 25th of May, and again the 1st of June, for not exceeding thirty-six hours; after this it is not needful.

Blossoms are injured by the water remaining on too long, the object of which is to destroy the insects. After the second flowing there is little to fear from them. The grade of the land and the ditching should be so arranged as to easily flood or clear the surface, and the sides of your drains should slope to an angle of forty-five degrees or more, in order to their permanence and utility; the number, arrangement and size being directed by good judgment.

The Midge.

Mr. Alex. Winram, of Cayuga, writes a letter in a late number of the *Cayuga Sentinel*, on the subject of the Wheat Fly, from which we make the following extract:

The excellent Prize Essay of Professor Hind, published by the authority of the Bureau of Agriculture, states that the Fly "appears during the latter part of June and remains until the middle of August." My letter to that Board stated that I first saw it, last year, on the 16th of June, which was also the earliest period observed near the Hamilton plank road, and at St. Catherines, but this year, owing apparently to the absence of frosts, it appeared on the 3rd and on the 7th, was plentiful on the 10th, and was in myriads all over on the 12th. Now, then, comes the momentous question, Can any wheat grown in an infected locality, be so early as to be out of danger of the Midge by the 7th or the 10th of June? I reply, I think not. Then, all our attempts to get before this scourge, by means of Kentucky wheat, or early Mediterranean, seems in vain. We only perpetuate the evil, by affording it means to continue, and until we cease entirely fall wheat sowing, assuredly we will go on as we are going, sowing in hope, and reaping in sorrow.

It is now 25 or 27 years since it was first seen in the famous Genesee Valley, and there it still lingers; and how many sad stories does one hear of its ravages on the southern shore of Lake Erie. There where the farms were swept by the breezes from the waters, the little tiny destroyers could not work, and the harvests were as usual, but in places sheltered from the sweep of the wind, they destroyed all before them; but still, year after year, the relying, unfortunate farmers stuck to the accustomed remunerative staple, Fall Wheat, because others living nigh by, were reaping good crops, becoming, by degrees, almost beggars; but necessity, that stern monitor, made them at last desist from the fruitless pursuit, they turned to other crops, and soon had the wolf, poverty, driven from their doors.

Is their experience no lesson to us? If, from a few isolated good crops, reaped here and there, we continue to gamble on in Fall Wheat, can we be said to be doing our duty to ourselves and others?

On the evening of the 12th, when the sun was just touching the tops of the trees, I went over my fields to search for the midge. Crossing some barley, your young friend, John Winram, cried, "there they are in thousands," and there they were in sad abundance. I swept some of the flies into my hat, and true enough, the yellow backed plague was certainly there. We clomb the fence towards the rye, and floating on a gentle easterly current of air, they came in myriads; but putting ourselves behind a blackened stump, we could accurately see the continued shoal float by, and as far as we could discern, the whole atmosphere, nigh the ground, was alive, and the ears of the rye were clustered with these creatures. I said, "Let us go home, John, I have seen enough,—and such a sight may I never see again." We went everywhere, and everywhere we found them—on the grass, amidst the oats, in the orchard, and, as if to show their numbers, they were also in the house. Nor is this a solitary example; as far as I have heard of in the County, they never were in such abundance as this Spring. In that Goshen of Haldimand, the Township of Oneida, I am told they are in abundance, and I have no doubt that if the truth were known, they are everywhere.

Well then, let us, Hotspur like, "from this nettle, danger, pluck this flower, safety," abandon, in infected localities, the Fall Wheat. Many have done so, and do they starve? Not at all, the very reverse. This Spring there is more abundance, less poverty, all over, than there has been for many years; and the reason is plain, it lays on the surface. In former years it was all Fall Wheat, nothing but Fall Wheat, no other cereal was ever thought of; the consequence was, not one farm in ten was really a Fall Wheat farm, but all ran after the one sort, and on they waded, when the bad times came, from bad to worse, landing in the long run by having nothing to sell, and little to eat. But driven to try peas, oats, barley, spring wheat, and pay some attention in preparing the land for the spring crop, and the summer fallows helping greatly, and having to encomise their store expenditure, there is now a healthier and more uniform state of things all over the country, than I ever knew, so the Midge has not been without its uses. It checked running out farming, forbade extravagance, made better farmers, introduced new grains, and will ultimately do good to us all. Bad farming was our Nettle, good farming will be our Flower.

How long the Midge works in the grain, or in other words, at what time is grain before the danger, and after it, is a question rather difficult to answer. I was told the other day, by an intelligent farmer in Rainham, that Spring Wheat sowed the 1st of May, last year, was badly hurt, whilst that sown on the 20th was completely untouched. Again I was assured by a most observant neighbor, that on Wheat examined on a Saturday evening, the larva or maggot, was just seen, more appeared on Sunday, and by Monday evening the heads were full of them,

whilst on Wheat a week or so later sown, examined one week after, that is, on the next Saturday, none could be found. So the fatal period must from these facts be about two weeks. In York State that time was thought to be about the 7th of July.

Now, were intelligent farmers to note down the facts occurring to them, in their own fields, regarding insect plagues, much good would follow to all. We would then be enabled to form a correct judgment, what to do and what to avoid. As it is, so varied are the opinions, and so few the data to guide us by that we go on stumbling in the dark, in complete uncertainty.

The Nettle.

There was a time in the history of British husbandry when the number of plants cultivated as food for man, and the inferior animals, was exceedingly small; now, their name is legion, and every year witnesses an increase in the roll of edible vegetables. The nettle is not a new plant; but it is never cultivated; indeed, it is usually associated in our minds with dismantled castles, ruined houses, and waste fields; but it is nevertheless, by no means, a useless member of the vegetable kingdom; and nicely dressed nettles can hardly be distinguished from spinach, for which, indeed, we have known them to be substituted on one occasion, without detection by the person, an epicure, too, by whom they were devoured. If the poor could obtain some flavouring ingredient, or unctuous substance with which to dress those at present useless plants, they might be turned to profitable account; and even without dressing, they could be used as a substitute for cabbage, in the favorite "bacon and greens" Sunday dinner of our peasantry. These thoughts anent nettles have been suggested by the perusal, in the *Field*, of the following short paper on the subject:—

"Growing on waste and neglected places, flourishing alike on breezy commons, and in the dirty ditches of the suburbs of towns, the nettle has neither beauty nor fragrance to recommend it to the ordinary observer. Yet, it is well worth careful inspection, on account of the beauty of its structure. True, it hrs a sting, if handled gingerly; but seize the plant heartily, and it will give you little discomfort. The nettle is a very common, low-bred, vulgar plant; but, nevertheless, in its family and alliances may be found some of the noblest members of the vegetable kingdom; such are the bread-fruit tree, the mulberry, the hop, the hemp, the fig, the stately banyan, and the deadly upas. It has not been without its affectionate admirers, as the following anecdote will testify:—A worthy floriculturist (not a native of the south of England) was showing his green-house to some ladies, when one of them said to him, "What is that in the flower pot? It is very like a nettle." "Indeed, ma'am, it is just a nettle; but it grew up sae bonnily, puir thing, that I could na' think to pu' it." It is not for its botanical beauty, or respectable connections, that we wish to put in a word on behalf of the nettle, but for its uses, which are too much overlooked. Although growing everywhere, it is very partially appreciated, and then only by the economical. As an old wife's remedy—and a very good one, too—it is used in scurvy, gout, jaundice, hœmorrhage, paralysis, &c. Nettle-tea, as a spring drink, were it generally used, would frighten the proprietors of that much advertised sarsaparilla of old Dr. Jacob Townsend. The stalks of the old nettles are little inferior to flax for making linen cloth, being used for that purpose in America, Siberia, Germany, and formerly in some parts of England and Scotland. The famous Indian grass-cloth, Chu-Ma, is woven from the fibres of a nettle. An excellent rennet is made from the nettle. The expressed juice makes a permanent green dye for wool. The root, boiled with alum, yields a good yellow dye. Nettles dried, and used as fodder, are capital for cows, increasing the quantity, and improving the quality of their milk. And one of the least of its virtues is, that if fish be packed in it, it preserves the colour and bloom infinitely better than any other grass or umbrage, dried or green. And yet, not for these uses, but more especially for its edible qualities for humans, do we wish to say a word in favor of the poor nettle; and, as the time is at hand when green meat, though very desirable, is not very plentiful, we hope the word may be in season. It is as a pot-herb that we would advocate its use, and the spring is the best time for gathering nettles for that purpose. To say that it is recommended by Loudon and Soyer is sufficient. It is said to resemble asparagus in flavour, but our experience would assimilate it with spinach, perhaps from the association of ideas, having eaten it dressed in a similar manner. The following is Soyer's method:—"Wash the nettles well, drain, put them in plenty of boiling water, with a little salt; boil for twenty minutes, drain, and chop them up, and serve either plain, or put them in a pan, with a little salt, pepper, and butter, or a little fat and gravy from a roast; or add to a pound, two teaspoonfuls of flour, a gill of milk, and a teaspoonful of sugar, and serve with or without poached eggs." And now, ye rich agricoles, if this weed is still unworthy your notice, tell the poor to send their children to gather the nettles. They will prove a wholesome food; and, as spring diet, will be better relished by the little ones than the vernal brimstone and treacle."—*Irish Agricultural Review.*

In England there are 300 silk manufactories, in which are 2,000,000 spindles and attendant machinery driven by engines amounting in the aggregate to 4,000 horse-power. About 7,000,000 lbs. of raw silk are imported into Great Britain annually. Few persons are aware of the amount of the English silk trade.

Correspondence.

Harvesting Wheat in Illinois.

Editor Agriculturist,—Having lately witnessed the operations of harvesting in Illinois, I send you the following note:

The wheat is cut by a reaper, which is driven before the horses, and is called a header, and cuts the straw about six inches below the heads, delivering it upon a platform, from whence it is taken by elevaters and deposited in a wagon, driven under the spout to receive it. When the wagon is full, the machine stops till that wagon is replaced by another, when off they go again. The wagon has a large frame upon it extending over the wheels some distance with a board bottom, and a row of stakes around the frame upon which is stretched coarse cotton in order that it may not be too heavy. One man attends this wagon, driving the horses and distributing the heads evenly till the wagon is full, when he drives off to the thrasher, standing convenient in the field, and then feeds it into the machine; when it is thrashed, cleaned, bagged, and hauled into the granary, thus leaving all the straw and chaff, which are not wanted either for food or manure, upon the field.

The machine for heading the grain is so arranged that it can, by means of a lever, be elevated or depressed at pleasure by the conductor, who stands in the rear on the end of the pole, guiding both machine and horses by a tiller wheel. These machines require only two men to work them, and one in the wagon; they thus save binding, stooking, stacking and almost all the teaming, which is of great importance on large farms where men are scarce and wages high.

R. L. D.

Dover Court, Aug. 4, 1860.

Vine Culture.

Editor Agriculturist.—Having read that valuable and interesting correspondence of Mr. De Courtenay and others, on the cultivation of the grape in Canada for the manufacture of wine, I have thought that a friendly discussion of the subject through the columns of your journal might perhaps prove beneficial to all parties; therefore, with your permission, I will proceed to state my views upon it. In the outset allow me to state, that I fully agree with all the correspondents upon the one principal point, viz.: that the climate of Canada is suited to the production of grapes for the manufacture of wine. But there is one other important point upon which I beg most respectfully to differ from them all, viz., the variety of grape suited to our climate. After ten years experimenting with every known variety, both native and foreign, I have come to the conclusion that there is not one of them exactly suited to the wants of Canada West. That there are one or two native varieties that will resist mildew (to a certain extent) upon their fruit, and make wine, with the assistance of sugar, we readily admit, and that there are one or two foreign varieties that will occasionally produce ripe and delicious fruit, without the application of sulphur to kill mildew we also admit; but in our humble opinion, before Canada can become a successful grape and wine growing country, we must have a grape that can be depended upon, to ripen its fruit, never to be liable to have its whole crop destroyed by mildew, and to make *good wine*, without the assistance of either sugar or whiskey. Such a grape we fear is not yet known; still we are not inclined to look upon our prospects in these matters, as at all gloomy. Surely if our fathers, after repeated trials, could produce from the wild crab, such splendid apples as we now can boast of, we with the tallest trees on our hill sides and valleys, covered with grape vines that bid defiance alike to mildew and cold, and who have in our cold graperies that splendid old Black Hamburgh, which will as certainly hybridize with the other as will any of the two most nearly allied varieties of a species, to work upon, and a knowledge of these facts, we have no reason to be discouraged.

If Mrs. Crehore, and Mrs. Gibbs, without any attempt at hybridizing, could produce from seed such varieties of grapes as Diana and Isabella, what might not be expected by a systematic cutting out the anthers of one variety, of some desirable qualities, and dusting the pollen of another variety, of some other desired quality upon the pistil, then sowing the seed of the fruit thus produced. Have we no Dianas or Isabellas amongst our wives or daughters, who with their delicate fingers will aid us in this interesting department? For there is no use denying that without their assistance in these days, nothing really great and good can be accomplished. And would it not be wise for our Horticultural Societies, and for our Provincial Agricultural Associations, to hold out more inducements in this direction? Most assuredly, if Canada is ever to become great as a fruit growing country, it must be by cultivating seedling varieties, that shall have originated on her own soil.

Charles Arnold.

Paris, C. W., Aug. 13th, 1860.

Pleuro-Pneumonia.—Hon. Adam Fergusson writes to us as follows, under date of July 16th:

I think it our duty to avail ourselves of every means in our power to investigate and to check the progress of the cattle disease. There is no doubt of the malignity of the distemper, but I feel strong hopes that it will not find its way to this quarter. I am just returned from New York State, and from the praiseworthy and prompt measures adopted, I entertain strong hopes that it will not be found to spread west of the Connecticut River. If my hopes should be

fallacious, and it should unhappily break out here, we must act promptly and decidedly. Dr. Henderson, Professor in the University of Edinburgh, and an *amateur* Veterinarian, assured me that he had found *Aconite*, if the disease was attended to in an early stage, *almost a success. I consider the disease to be contagious, and I trust our farmers will watch their cattle anxiously, and take any attack in time, and communicate the earliest appearance of it to you.*

The Wheat Fly.

To the Editor of the Agriculturist,—About this time last year we addressed the farmers on the subject of the wheat fly; our endeavor was so to direct general attention to its habits, that by thorough acquaintance with them, some means could be devised by which our country might be rid of a scourge that at no distant period promised to deprive us of our staple product, the wheat.

Among other suggestions made, we recommended sowing only the earliest kinds of winter wheat, and that they should be put in not later than about the end of August or the first of September. In order to obtain if possible an earlier kind than the country then possessed, we introduced seed the growth of Kentucky, where the harvest takes place long before our own. The results of this experiment have been various, showing in some instances a success fully equal to our anticipations, but in others a falling off amounting to a failure. We have now reason to think that where the seed was sown in good time, the failures have arisen from a portion introduced not having been genuine, it is therefore our intention to follow up our researches by again trying Southern wheat carefully selected, and also by sowing from the produce of Southern wheat raised in this country. That all observations of ours on the subject shall be considered disinterested, we may mention that it is not our intention to import, or have for sale this year any Kentucky seed.

We have on a former occasion called attention to the fact, that it is the late fall wheat and the early spring wheat, that are eaten by the fly; this season's experience has fully confirmed our statement, for we are sorry to say that many farmers who tried the chances in early sowing of spring wheat, have lost their crop either altogether or in part. The fall wheat has escaped or otherwise, exactly as it has been early or late in coming to maturity.

Mr. T. Baxter of Wellington Square, in a letter to the *Globe*, dated July 7th, takes us to task for having in 1859 recommended the trial of Kentucky wheat, and for writing in June last that this variety had escaped the fly, because that in following out our idea he did not succeed. In answer we have to say, Mr. Baxter purchased his seed in Buffalo, where it is notorious that large quantities of wheat are sold as Kentucky, which never came from that State, and his might not have been genuine.

We do not now remember the date when his purchase was made, but we know it was not very early, which circumstance alone would interfere with the fairness of the trial. In the South farmers sow in August, and we may reasonably suppose that the plant, in order to come *early to perfection*, and *bear as well as our own kinds*, would require as much time to prepare itself here, for the attacks of winter, as it is accustomed to get on its native soil.

The report of the fall crop in the State of New York may be condensed into saying that "notwithstanding the undoubted presence of the fly in its usual numbers, all the early varieties have escaped it, among which are the white and red Kentucky, and the Mediterranean." With us the difference is, that all the fall wheat that came in early, from whatever cause or combination of causes, has this year anticipated the insect in its movements, pointing out more plainly that if we can by any means *secure* this early ripening, we need fear neither the fly nor (in all probability) the rust.

Individual farmers have suffered severely from the effects of spring frosts, and from the action of the fly, but the average yield of grain has been very good in Canada West—greater in quantity than has ever been known before, and the quality of the fall wheat, where it has not been housed too soon, will prove very superior.

Your obedient servants,

F. A. Whitney & Co.

Toronto, August 15.

Agricultural Intelligence.

Sale of Shorthorns.—At a sale of Shorthorns lately in England, of the "Waterloo" tribe, being a portion of the herd of Mr. Bolden, of Springfield Hall, Lancashire, twenty-nine animals fetched £2548 17s. stg., or an average of £88 a piece, believed to be the highest prices of the season.

The Wheat Crop of Michigan.—The Committee appointed by the Michigan State Agricultural Society to award premiums on farms, in their report say:—

"As to the quantity of wheat grown, after numerous calculations based upon data quite as reliable as ordinary statistical tables, we feel warranted in estimating the number of acres the present year, at one-third more than the crop of '59, and the average yield per acre at not less than one-fifth greater than in '56 and '57. If these premises be correct, by the aid of the statistics of former years, we arrive at the inevitable conclusion, that the wheat crop in Wisconsin must equal 1,062,097 acres, with a yield of

22,304,037 bushels! So that, after deducting the odd hundreds of thousands, for loss in harvesting and for possible exceptional crops in localities concerning which we are wanting in definite information, we may safely reckon the gathered product at *twenty-two millions of bushels!*—an amount with which we may feed the entire population for the year, and have a surplus of seventeen millions for exportation; which, at probable prices, will yield a revenue of at least *twelve millions of dollars!*"

Dayton Wheat.—*Its Success.*—Many of our farmers are much pleased with the Dayton wheat, and think it preferable, in districts where the midge is feared, to any other variety. Our own opinion of it is quite favourable, as *Rural* readers are aware, and we are glad to hear encouraging reports from those who have just harvested the Dayton. A number of farmers have reported favorably, one of whom—Mr. L. A. Beebe, of Lima—writes us as follows:—"Last year I obtained of Elisha Harmon, of Wheatland, a few bushels of Dayton wheat, which I sowed, and the result is highly satisfactory. Some of it I sowed in the same field side by side with the Mediterranean, and I find it is quite as early, and I think it will yield one-third more from the same straw. It is a white wheat, resembling what the 'Soules' *used* to be. A head of this was found to contain thirty kernels, while the Mediterranean has only twenty. There is still another advantage—the Mediterranean is very apt to get down, the straw being limber, while that of the Dayton is stiff and seldom gets down. In short, I think the Dayton is the wheat for the times."—*Rural New Yorker.*

The Importance of Collecting Manure.—During the bustle of harvest farmers are generally too careless about increasing the manure heap, although it is in the fall that a good foundation should be laid for the pile. We have seen the good effect of top-dressing meadows immediately after the hay crop is removed, and we would recommend our readers to try the experiment even on a small portion of their fields. For this purpose muck, saturated with liquid manure, is an excellent application, and the present is a good time for raising the muck and drawing it near the locality where it will be required next season. We do not approve of using the muck fresh from the swamp, as it requires to be exposed to the weather for a year and to have the roots and fibres it contains perfectly decomposed. When the cereal crops are harvested farmers should set about collecting manure in earnest, as by so doing they will increase the fertility of their land and their own prosperity. There are many solids and fluids suffered to go to waste, which might be made extremely useful in promoting the growth of various crops. Every farmer should have a liquid manure tank, as by this means several hundred dollars might be added to the annual profits of his farm. There can be no great improvement in the agriculture of any country until the management and application of manure are well understood and properly practised.—*Detroit Tribune.*

Advantages of Under-Draining.—1. It *prevents* drought. 2. It furnishes an increased supply of atmospheric fertilizers. 3. It warms the lower portions of the soil. 4. It hastens the decomposition of roots and other matter. 5. It accelerates the disintegration of the mineral matters in the soil. 6. It causes a more even distribution of nutritous matters among those parts of the soil traversed by roots. 7. It improves the mechanical texture of the soil. 8. It causes the poisonous excrementitious matter of plants to be carried out of reach of their roots. 9. It prevents grasses from running out. 10. It enables us to deepen the surface soil by removing excess of water. 11. It renders soils earlier in the spring. 12. It prevents the throwing out of grain in winter. 13. It allows us to work sooner after rains. 14. It keeps off the effects of cold weather longer in the fall. 15. It prevents the formation of *acetic* and other acids, which induce the growth of sorrel and similar weeds. 16. It hastens the decay of vegetable matter, and the finer comminution of the earthy parts of the soil. 17. It prevents, in a great measure, the evaporation of water, and the consequent abstraction of heat from the soil. 18. It admits fresh quantities of water from rains, &c., which are always more or less imbued with the fertilizing gases of the atmosphere, to be deposited among the absorbent parts of soil, and given up to the necessities of plants. 19. It prevents the formation of so hard a crust on the surface of the soil as is customary on heavy lands. 20. It prevents, in a great measure, grass and winter grains from being *winter-killed.—Farmers' Magazine.*

Farming at Sault Ste. Marie.—A Mr. T. Mc Knight, writing from Sault Ste. Marie, on June 20th, to a friend, says:—"In reply to your question with regard to the raising of grain at Sault St. Marie, I have to say that I have never sown any winter wheat, but others who have for the last ten years have never failed of a good crop, except in one instance, and that was said to be badly managed, being put in the last of September, and the season besides was unfavorable. Oats I have raised two seasons. In 1858, which was a good season, I got forty bushels per acre; in 1859, a bad season, I got thirty bushels per acre. Weighed thirty to thirty-two pounds per bushel, and sold for seventy-five cents per bushel in the winter. Of peas, in 1859, I had thirty bushels per acre—good season for peas. Sold part for $1 50 and part for $2. Of wheat, in 1859, I sowed 2¼ bushels wheat, from which I got 50 bushels. Good plump berry, not worth over 90c, if as much. There being no mills here, I do not care to experiment in wheat on that account. Oats, barley and peas are saleable at 6s. for oats; 12s. for peas; 8s. for barley. I have not failed of getting that price the two years (1858-9) that I

have been farming. Hay (pressed) this year, I sold 20 tons at $20 per ton; probably the average price for the next six years will not exceed $16, and will not fall short of that.

New Brunswick.—Mr. Robb, Secretary of the Board of Agriculture of New Brunswick, has issued an address to the Farmers of that Province to place them on their guard against the cattle disease. He says:—"No cases are as yet reported in any of the British Provinces, but we may expect to hear of them, and it is of the highest concern to us that it should not be introduced into New Brunswick. What the potato rot has been to potatoes, murrain or Pleuro-pneumonia is to horned cattle. Fortunately the cause of the latter seems to be less obscure, although its cure is as difficult as that of the former malady. It seems to be purely contagious, and thus, by proper precautions, it may be kept at a distance at all events.

There would seem to be no safety but in the utter and absolute exclusion from the Province of all cattle from suspected countries. Raw Hides may also be treated as dangerous.

No consideration of private gain or convenience, will justify the least risk in this matter. Farmers, Butchers, of all kinds, are hereby cautioned most seriously in regard to the import of cattle from without for this year, and urged to kill off all cases as soon as known, and report the same to the proper authorites."

King Philip Corn Improving.—In a recent conversation, E. H. Gilbert, Esq., of Nunda, N. Y., informed us that he last year raised 525 bushels of ears of King Philip Corn on four acres. It was planted about the 12th of June (after the severe frost,)—the rows being 3 feet 9 inches apart each way. The crop was hoed only once, but cultivated three times. Mr. G. says that according to the experience of himself and other Livingston county cultivators, this variety of corn has greatly improved within the past five years. The ears are much larger (nearly a third) than formerly, and the crop more productive, though a few days later in ripening. Has the same improvement been manifested in other sections where the King Philip is a comparatively new variety?—*Rural New Yorker.*

Sales of Shorthorns.—Three large sales of Shorthorns have taken place in Kentucky this season. Mr. Sheffer, B. Warfield and R. A. Alexander have each in turn, afforded buyers an opportunity. A correspondent of the Ohio *Farmer* very justly observes:

"You will find that some animals sold cheap, from $25 to $50, while others brought as high as $360; and it was invariably the fact that when a good animal was offered, the price was good; but inferior ones no one wanted. But I suppose it is enough to say that the average at Mr. Sheffer's sale, in a large herd of cows, heifers and calves, was about $90; at B. Warfield's, about $70; and at R. A. Alexander's, $150. The reason, I think, why the average was so low, in all, was the fact that so many were offered at one time, which over supplied the market.

Potatoes under Straw.

Having seen, more than twenty years ago, reports of extraordinary success in raising potatoes by covering them with straw, I was induced to try a small experiment, which I will relate.

A plot in my garden about fifty feet square, of well manured clayey land, was spaded up and made fine and smooth. It was then marked out in shallow drills two feet and a half apart, and potatoes (of the pink-eye variety) planted whole two feet apart in the drill, and barely covered with earth. The whole patch was then covered with light, dry wheat straw, which had been very much broken by its passage through a thrashing machine, and the same spread lightly and evenly with a pitchfork to the depth of about two feet. Several showers occurred soon after the potatoes were planted, which settled the straw very considerably, and in due time the vines came up through the straw, and soon covered the entire surface with the rankest vegetation.

Nothing more was done to the patch till the vines were killed by frost in autumn. Not a weed appeared among them. At the usual time of digging potatoes, the dead vines were all pulled and removed; then, with a potato fork, the layer of straw—which was pretty well rotted, and not more than four or five inches in thickness—was carefully removed. To my great surprise, there lay the potatoes on the surface, literally covering the ground, and almost as clean as if they had been washed. They were picked up and measured, but the quantity I do not remember. This much, however, I well recollect: that I never raised so good a crop by any other mode of culture. They were of very uniform size, and of good quality.—*S. Mosher-Latonia Springs, Ky.*

Clover, Timothy, and Wheat—Quantity of Seed per Acre.—In a late communication to the *Rural American*, Mr. John Johnson says:

I once sent out a man to sow clover seed with a sowing machine that would sow five quarts of timothy seed, or any quantity more I might wish. I set it for sowing clover the same as for sowing five quarts of timothy. I gave the man seed enough to keep him sowing until noon, as I thought; but in two hours he was home for more seed. Being sure that he had either driven the horse far too fast, or sown far too thick, I went to see, and found he had sown full 24 quarts to the acre; and as the machine could be set no *closer*, I stopped it, and had the balance of the field sown by hand, at the rate of not quite ten pounds per acre. The result was, where the 24 quarts were sown to the acre, the clover never got taller than the natural white clover we some seasons have in such quantities, but which

is generally too short to cut; while that sown at about ten pounds to the acre was as good as I could wish. I have never sown over 12 lbs. of clover seed to the acre, unless done by mistake, and I have always had large crops if any one else in the neighborhood had.

Half a bushel of timothy seed to the acre will give a better quality of hay, but with me the quantity is much less than six quarts. I know we read that those who sow bountifully shall reap bountifully, but this will not hold good in farming. I vibrated between one and three bushels of wheat to the acre for several years, but settled down at 1½ bushels, believing it to give the greatest yield; although with 2 to 2¼, the wheat ripens a few days earlier. To prove this, a farmer has only to sow half an acre with from 2¼ to 3 bushels per acre, and sow the other part of the field 1½, and it will befound that the thick sown will be ready to cut a few days sooner than the thin.

It is stated that spectacles are to be sanctioned for short-sighted soldiers. Three infantry recruits arrived at Madras, found to be defective in sight, were thus assisted, and rendered instantly effective. It was observed that if the commander-in chief did not object to the incongruity of a soldier in the ranks wearing spectacles, there could be no other objection to their being supplied to such men as might require them. A large number of officers assist their sight in this way, and it is a well known fact that many sportsmen wear glasses, some of whom are first-rate shots, and who could not see to shoot without them. Government have accordingly authorized the supply of suitable glasses to the men referred to, as an experimental measure to be reported upon hereafter.

Mediterranean Wheat.—The *Michigan Farmer* says:—Mr. J. D. Yerkes informed us that in examining the heads on a field of Mediterranean wheat, the punctures of the insect were very plainly perceptible. The husk, however, of this variety of the wheat plant, seemed to have been so hard that the ovipositor of the midge could not penetrate it, so that this variety has not been hurt. This observation of Mr. Yerkes confirms the opinion heretofore expressed, that the husk or palea was of so firm a texture that it was a protection to the grain from the deposit of the egg of the midge.

Buckwheat Straw.—J. A. Hubbard, writing to the *N. E. Farmer* from a locality in Maine, where this grain is extensively grown, says that buckwheat straw "is injurious to young pigs, and if they lay in it, it will set them crazy, and they will finally die. It is hurtful to hogs and young stock to run through it when green, making their head and ears sore and itch very much."

Deep Tillage.—In 1852 an article went the rounds of the papers, stating that Robert Buist, the well-known accomplished gardener of Philadelphia, had asserted,—"That with proper cultivation, ten acres would yield as much as thirty tilled in the old way; that nothing less than three tons of hay, thirty-five bushels of wheat, eighty bushels of corn, and from four to six hundred bushels of carrots, parsnips and mangel wurzel, per acre, should satisfy us."—He said, "it is many years since I was favorably impressed with the benefits of sub-soil plowing, but the past season put a climax on all my former experience; land that was sub-soiled was more moist; the crops of a better color and more luxuriant, so much so, that I have determined to double plow ten or more acres of my land every year."

Horticultural.

Garden Memoranda.

The practical hints contained in our last will also be applicable during the remaining half of the month, in regard to keeping down weeds, hoeing and stirring the ground, earthing up celery, tying up plants, &c. The sowing season being over, or nearly so, there is in fact not much to do at present except to give such steady attention to crops and plants as is obviously required, the details of which we have already given.

The Flower Garden.—Green House Plants will need daily care at this season. Let them be well watered every evening in dry weather. Geraniums that have done flowering should now be pruned, in order that the size and appearance may be improved. As soon as the extreme heat of the summer is past, which is generally by the latter end of this month, or early in the next, preparation must be made for replenishing with fresh compost, and re-potting such plants as are intended to be cultivated through the winter in a green-house, light room, or garden frames.

Those who may have a number of plants in various sized pots, should provide a few new pots a size larger than the largest in use; the largest plants being shifted into the new pots, leaves the next sized pots for the second-sized plants, and by pursuing this plan of shifting until the whole are done, the smallest pots will be left for such plants as have been propagated in the course of the summer.

The shifting of plants requires considerable attention and judgment, as some plants, if kept in too large pots, will sustain considerable injury: therefore, in such cases, where the fibrous roots have not spread around the pot, nothing more is necessary than to rub off a little of the outside mould, and then to substitute fresh compost for the roots to run in.

Such plants as may have become pot-bound, and whose roots are matted around the pot, will,

in many cases, bear reducing. If the matted roots are carefully pared off, and the plants shifted into good fresh compost, they will soon take root, and grow freely; but it will be necessary to prune off all surplus branches of the plants previous to re-potting them, and to shade them for a week or ten days.

Pieces of tile, or broken pots, should be laid over the aperture at the bottom of the pots, to enable the surplus moisture to drain off, or the roots will sustain injury.

The flower beds will need attention this month. Water Dahlias and other choice plants in dry weather; cut down all decayed flower stalks, as soon as the seed is gathered, and pull up annuals as they cease to flower.

Soil.—All the commoner kinds of green house plants will grow well in a soil composed of two parts loam, or what is commonly called "virgin soil" from an old common, mixed with one part well rotted manure, and one part of sharp sand, the whole to be thoroughly mixed and incorporated together, and sifted through a half-inch mesh riddle before using.

Strawberries.—The following useful hints on Strawberry culture we take from Shenck's "Gardeners' Text Book":

"Four things appear to be essential to success in the cultivation of the strawberry, viz.: a good selection of varieties,—a favorable situation,—careful culture,—and a renewal of the bed once in every three or four years. The labor, apart from the formation of the bed, is but trifling, and is, indeed, often over-estimated; while the necessary annual outlay, is of small account in a garden of common dimensions. A moderate crop yields a rich reward for the expense incurred. When we see our own vines literally covered with fruit, tempting to the eye, and pleasant to the taste, we cannot but inquire how it happens, that a farmer, or a *gardener*, or any person in the country having a rod of spare ground, can be without a plantation of strawberries.

The situation of the bed ought always to be open, away from close fences, trees and buildings, so that the plants may not suffer from the want of light and air. To have a succession of crops, one bed may lie towards the south, and a second have an inclination to the north. Where the soil is not naturally of a suitable character, it should be brought into that condition before the plants are set out. A good loam, light rather than heavy, deep, rich, and somewhat moist, is undoubtedly to be preferred. It needs to be friable so as to be easily worked, and yet not so light as to suffer from drought. It would seem that a slight degree of moisture is indispensable to the full perfection of the fruit. Moreover, the soil should be both deep and rich, that the roots may have plenty of room in which to extend themselves, together with a good supply of food suited to their wants. To prepare the ground for a plantation in the best manner, we would recommend trenching and manuring it several months previously, taking care that the manure shall be well incorporated. Instead of using common stable dung alone, we should rather apply it in connection with leaves, decayed wood, ashes, plaster, salt, or bone-dust. It sometimes happens that too large a supply of dung, causes a rank growth of vines, without a corresponding return of berries.

After the ground has been properly dug,—all the lumps being pulverized, and the surface raked smooth,—rows are to be struck out at distances of two, or two and a half, feet from each other. In our own garden, we should be willing to allow even more room, being under the impression that there is such a thing as crowding the plants, and thereby injuring their productive powers. The months of April and May, or August and September, are the proper seasons of the year for making new plantations. The first season is undoubtedly the best, because the newly-transplanted vines then require less attention than they would in the heat of summer, and the first fair crop will be a twelvemonth earlier.

The best plants are the young, healthy-looking runners from old stocks. They are to be set out at distances of twelve or eighteen inches in the rows. A hole is made by means of a small dibble, and before the root is inserted, it should be dipped in mud, a semi-fluid mass of dung and water, or even simple water, in order that the freshly-stirred earth may adhere to the fibres.

Every root ought to be set firmly, and when the operation is not followed by a shower, the ground ought to be well watered. If the season be autumn, the new beds require not a little attention, and the liberal application of water will be frequently necessary, until the roots become established. Whenever practicable, transplanting ought to be performed in dull, damp weather.

It will not be long before runners show themselves, and instead of being allowed to roam over the bed at will, they must be trained along the rows so as to form parallel lines of plants, with good, wide paths between them. This system of culture is preferable to every other for many reasons, and principally on account of its being more convenient of access for weeding and gathering the fruit. Light and air are freely admitted to the leaves, while the roots have a large foraging ground beneath the unoccupied paths. The hoe must be often used, as well to keep the surface light and porous, as to eradicate the young weeds before they have taken possession. A full grown weed in a strawberry bed, speaks but little in praise of the owner's industry, or skill in gardening. In severe hot weather, the plants ought to be examined every day, to ascertain whether they be suffering from the want of moisture. This is particularly necessary where the situation is dry and in a warm exposure. But, in most cases, frequent stirring of the soil will attract sufficient moisture from the atmosphere. Mulching, or covering the surface with straw or leaves, is to be recommended, as

checking evaporation, and preventing the parching effects of drought.

In the beginning of winter, a covering of leaves, straw or any light litter should be given, to prevent injury from frost. When the land is not quite rich enough, this is a good time to dig a little compost into the paths, to keep the roots warm through the winter, and cause them to start thriftily in the spring.

As soon as the weather becomes settled in March or April, the covering is to be removed, and the ground ought to be frequently stirred, until the flowers open. At this time, clean straw, sea-weed, or coarse hay, can be spread around the plants, for the purpose of protecting the berries from sand; this also is useful in keeping the soil moist, and, when decayed, it forms an excellent manure. After the blossoms fall, the growing berries ought to be occasionally watered, in case the season prove dry. Throughout the summer and autumn, the runners are to be confined to the rows from which they start, unless new plants are wanted, when they may be permitted to root themselves in the paths. No room should be allowed a weed or a blade of grass. The same course of management is to be pursued annually thereafter.

A strawberry bed cannot be expected to remain in perfection longer than four years, and to ensure a regular supply of fruit, it is advisable to make a new plantation in every second year. There is, however, a plan of renewing the bed at the end of each season, which is simple, and answers a good purpose. The rows are about three feet apart, that the paths may be as wide as the spaces occupied by the plants. After the crop has been gathered, the runners are allowed to strike themselves into the paths, which have been previously enriched by manure when not sufficiently fertile. With a little care, they will cover the ground very regularly. In the latter part of summer, the old plants are to be spaded under, and the spaces which they occupied are now to be used as paths. At the close of the next season, the process is to be repeated, and so henceforth until the land has become tired of the berry, when the plantation may be removed to another part of the garden. It will be observed that the strips of land are every other season at rest, while their principal production, the old vines, are dug under for the benefit of the roots." J. F.

Fruit Growers Society of Western New York—Interesting Discussion.

The June meeting of this Society was held in Buffalo, on the 27th and 28th ult., and much valuable information on the best varieties of fruit, and the most approved methods of cultivation, was elicited.

In the discussion on the cultivation of the strawberry, it was asked, "which are the best six varieties for the market, and the best six for family use, and which the best method of cultivation in each case?"

E. Herendeen, of Macedon, said he could recommend only one variety for market, and that was Wilson's Albany. It will produce four times as much as most other sorts, and twice as much as any other. It was rather acid, but of good flavor—and of which the taste never tires. It not only produces a good crop, but uniformly large berries; those of the last picking being almost as large as the first. Cultivate in rows first, setting the plants eighteen inches apart in the rows, and the rows four feet asunder. Mulch with straw or cut grass.

Professor Coppock, of Buffalo, could not agree with Mr. H. He did not find the Wilson more prolific than some others, and thought it not fit to eat, being altogether too acid. The ladies say it is not good for preserving. Trollope's Victoria is a good bearer. Triomphe de Gand not productive. Scott's Seedling is equal to Wilson in productiveness, and can be carried well. Genesee is a good bearer, but rather soft for market. Would recommend for culture Scott's Seedling, Genesee and Longworth's prolific.

Mr. Moody, of Lockport, said we needed earlier berries than the Wilson. Jenny Lind is early, large, productive and fine fruit. Burr's New Pine is the finest flavored of all. Peabody is a very good strawberry. Triomphe de Gand bears well when grown in hills, but must not be allowed to run into a mass. Scott's Seedling he considered the meanest berry in cultivation. Recommended as the best six, Jenny Lind, Triomphe de Gand, Hooker, Trollope's, Victoria, Monroe's Scarlet, and Wilson's Albany.

Professor Coppock said that in preparing for strawberries he plowed and subsoiled his land, and placed it in as good condition as for a crop of corn or wheat. He set his plants in rows about eighteen inches apart. He mulched with tan-bark, buckwheat straw, &c., but never with saw-dust. Once in about five years he plowed up the beds and made others. The excrementary matter thrown off by the old plants rendered it necessary to form new beds.

F. Glen, of Rochester, said there was one variety which had not been mentioned, which he thought would produce more berries in a season than any other: this was the Crimson Cone. From a bed containing sixteen square rods, he picked, last season, 1,100 quarts, and this season 1,000. Wilson's Albany the second year was almost worthless, but the first it was very productive. He considered Triomphe de Gand the best of all. Large Early Scarlet was a valuable sort, and in three years would yield more berries than the Wilson.

James Vick, of Rochester, coincided with Mr. Glen as to the productiveness of the Crimson Cone. A few years since this was the only variety grown for the New York market, and several of the growers in Jersey had informed him that it was the only variety from which they

could make money. He called attention to the advantage of growing strawberries in hills, a plant when kept shorn of its runners becomes very large by side shoots from the crown, throwing up numerous fruit stalks.

Charles Downing of Newburgh, being asked to express his opinion on the question, said he regarded Wilson's Albany as the most productive variety, but had a great dislike to its flavor and would not grow it. Jenny Lind is a fine early sort. Triomphe de Gand was his favorite. Trollope's Victoria was of a good quality but not productive; Hooker does not do well. Scott's Seedling is a fair bearer but of poor flavor. He was cultivating a new kind from Canada called Ladies' Pine, in flavor like Burr's New Pine and moderately productive.

Mr. Beadle of St. Catherines, C. W., knew nothing about cultivating for market, and could only give his experience in cultivating for family use. His preferences were the large Early Scarlet and Hovey's seedling which does well and gives a few large berries on each truss, the root being of moderate size. Thinks Burr's New Pine is the best strawberry and tolerably productive. The rival of it in flavor is Triomphe de Gand. Hooker bears large berries, and fine crops. Some say Hooker is tender. In Canada all strawberries are tender, but when covered with leaves are perfectly safe.

CHERRIES.

What are the best six varieties of cherry for family use, and also for market purposes?

Mr. Downing was called upon for his opinion, when he remarked that Coe's Transparent was an excellent Cherry for family use. Belle de Choisy was better, but a poor bearer. May Duke was one of the best for the market. He would also recommend Great Bigarreau and Kirtland's Mary, and would speak well of Gov. Wood, but it is so liable to rot. Early Richmond is a very useful cherry. Early Prolific is a good early cherry, and a great bearer. Ripens with Belle d'Orleans.

Prof. Coppock recommended for market Black Tartarian, Yellow Spanish, Elton, May Duke, Coe's Transparent, and Black Eagle.

C. P. Bissell, of Rochester, thought well of the Early Purple Guigue, Coe's Transparent, and Belle de Choisy.

Mr. Moody had only one Early Purple Guigue tree. Had kept an account of the fruit sold from it the last three years, and it amounted to $11. The birds eat all of the Bauman's May, but do not trouble Early Purple much. Black Tartarian does first rate, but Coe's Transparent is of much better quality. Belle de Choisy is the best of the Cherries. His children never picked anything else when it was ripe. Knight's Early Black is a good sort.

C. D. Hoag wished to call attention to an old and neglected variety, the American Black Heart. It was always fair and perfect—never wormy, and was selected by visitors, and purchased, in preference to any other Black Cherry he cultivated. It bears remarkably well every season. Had a tree 40 years old now giving large crops. An inferior sort had been sold under this name.

Mr. Frost, of Rochester, remarked that Coe's Transparent, at the Genessee Valley Horticultural Society, took the first premium for the best quart. Mr. F. thought that Belle de Choisy was one of our best desert cherries, and when the tree obtains age it bears well; but as for cultivation, Mr. Frost spoke very strongly in favor of trees on the Mahaleb stock. Dwarfed in this way they are far hardier than as standards, and are particularly desirable in the vicissitudes of our climate at the West. The tree is more bushy and in form much preferable, while the fruit can be much easier gathered, and is actually much larger and finer than on standards. Besides this the trees bear fruit earlier, and for small gardens the Duke and Morello varieties are particularly desirable on Mahaleb stock.

Mr. Townsend would mention one variety not generally known, but much esteemed in the neighbourhood of Lockport—the Townsend Cherry, a seedling raised by the speaker. It is very early—had picked it the 7th of June. Always produces a crop. Liked the Black Tartarian, Elton, May Duke, Brockport Bigarreau, Downer's Late. Purple Guigue was always destroyed by birds, and Belle de Choisy never produces a crop.

Mr. Glen recommended Belle de Orleans, Gov. Wood, Coe's Transparent, May Duke, Early Richmond, Downer's Late. To this six he would add one or two others, to fill up the season.

Mr. Downing thought well of Vail's August Duke, one of the most promising of the new Cherries Something like May Duke, but several weeks earlier. A seedling of Mr. Vail of Troy.

Mr. Beadle lived in a cold country, (Canada) where the Heart and Bigarreau Cherries did not succeed, but where the Dukes and Morellos flourished very well. Could grow May Duke. E. Richmond and Reine Hortense, and a few others. Would like a list of Dukes and Morellos that it is best to plant.

Mr. Downing recommended, in addition to those mentioned by Mr. B., Late Duke, Royal Duke, Plumstone Morello, and Vail's August Duke.

Mr. Hoag recommended as the best six, Early Purple, Gov. Wood, Townsend's Seedling, Black Tartarian, Rockport Bigarreau, Old American Black Heart.

Mr. Townsend said cherries should be grown on land of only moderate fertility, and it is not best to cultivate too highly. Trees grown on Mahaleb stocks are hardier than on Mazzard, and much less liable to be injured in winter. They commence bearing at three years old. The size and quality of the fruit was much better on Mahaleb stock.

Mr. Downing thought the Mahaleb one of the best stocks that could be used.

RASPBERRIES.

What are the best varieties for market, and which the best for family use,—hardiness and productiveness considered?

Chas. Downing recommended Brinckle's Orange for family use; for market, the Hudson River Antwerp.

Mr. Townsend considered Brinckle's Orange too tender.

Mr. Downing considered it quite hardy, but all Raspberries should be laid down in the winter. This is the practice with all growers for market around New York.

Mr. Vick said he had received letters from the West stating that the Orange was the hardiest of all the cultivated Raspberries.

Mr. Fish said all the varieties he cultivated killed back, except the Black Raspberry, which was the only one he considered worthy of cultivation.

Mr. Glen wished to add the Fastolf to those recommended by Mr. Downing.

Mr. Downing said it was good, but would not bear carriage, being too soft and tender.

Mr. Hoag had a good number of varieties, and they were all killed back, the Orange with the rest, but if it receives the slightest protection from the winds, even by the trees, it is safe.

The Black Cap was spoken well of by several members and recommended.

Mr. Frost had grown several of the Everbearing varieties, but had not given them much attention; perhaps, not as much as they deserved. The Catawissa, he thought, the best. It gave a good crop in the summer, and again in the fall, continuing until October.

Mr. Downing inquired if the berries were perfect; with him they were very imperfect.

Mr. Frost said some imperfect berries were produced, but it gives a good crop of perfect fruit. To get a good crop, the old canes must be cut out, and the fruit obtained from the present year's shoots.

H. T. Brooks knew nothing of the *ever*-bearing sorts, but he had a *never*-bearing variety.

Mr. Glenn thought well of the Doolittle Black Raspberry. Cultivated between two and three acres. They will sell well and ship any distance. They are larger, and not quite so seedy as the common Black Cap.

Mr. Peck, of Bloomfield, grew Black Cap from the woods, and could not tell the fruit from Doolittle's Improved.

Mr. Downing called attention to Vice-President French—a week later than most of the Raspberries. A fine large berry; plant vigorous and productive.

CURRANTS.

Which are the best varieties, both for market and family use?

Mr. Moody thought most of the White Grape Currant. It was large, and not so acid as many others, and hangs on the bushes well. Had them last season until the first of October. The Cherry Currant is about the same size, and an enormous bearer.

Mr. Downing said there was but very little difference in the fruit between White Grape and White Dutch. There was considerable difference in the leaves and habit of the plant. There was a new currant, said to be twice as large as White Dutch. Versailles is a most desirable currant, the best of the new ones. The berry is as large as Cherry, and the bunches longer.

Mr. Frost said the Versailles was much grown, and was very popular around Boston. The berries were large, the bunches long, and the fruit very easily gathered.

GOOSEBERRIES.

Mr. Frost was cultivating, in addition to many English sorts, the American Seedling and Houghton's Seedling. The American is the most upright in growth, and is considered the best around Cincinnati and at some other places.

Mr. Downing said the American Seedling was known by different names in different localities. Mr. D. said, in answer to an inquiry, that Downing's Seedling was an improvement on Houghton's Seedling, a very fair berry, but like all new things had been over praised.

Mr. Hoag thought pretty well of the Mountain Seedling. It is very productive, and makes a good vigorous growth, and never mildews.

Some discussion followed as to the best means of preventing mildew of the European varieties, but nothing new was elicited.

PEARS.

What variety or varieties of dwarf pears is it best to plant in an orchard of three acres; at what distance should the trees be planted, and what is the best mode of culture?

Mr. Fish would plant Duchesse d'Angouleme. It is a good grower, bears early enough, and being a large, showy fruit, always commands a high price in the market, but would not plant one variety exclusively. Sometimes one sort fails, and in such a case it is not best to have a total failure. No farmer likes to grow one crop exclusively, on this account. Louise Bonne de Jersey does exceedingly well, and with him the Virgalieu did not crack. Would set out equal numbers of Duchesse d'Angouleme, Virgalieu, Louise Bonne de Jersey, with some Bartletts double worked.

Mr. Townsend found that trees were most subject to the blight just as they were coming into bearing, and high culture he thought favourable to the disease. He had suffered very severely—lost hundreds of trees. Noticed that when a vigorous growth was made one year, trees were subject to attacks from blight the next. Had cultivated between the rows, but proposed to let them go in turf for awhile. Thought Louise Bonne de Jersey the best pear

to make money of. After this, Virgalieu, Seckel, Beurre Superfin, Bartlett, (double worked,) Tyson and Rostiezer. Would double work Bartlett on White Doyenne.

D. S. Manley, of Buffalo, said they could not raise a good Virgalieu in that section, neither on a standard nor a dwarf. For early pears would plant Rostiezer and Tyson. Liked Louise Bonne de Jersey, and would pick off fruit so that it be not allowed to bear until five years planted. Duchesse d'Angouleme should be served in the same way. There is not a pear orchard west of Boston cultivated too highly.

Mr. Moody spoke highly of the Lawrence as a winter pear. It ripened without any trouble, just like apples in the cellar, and was about as good as the Virgalieu.

Mr. Townsend remarked that while he had spoken of the blight which had really troubled him, he did not wish to carry the idea that he was discouraged, for with all his losses his balance sheet exhibited a balance on the right side. He obtained a profit of from $300 to $500 per acre to land on which he cultivated dwarf pears. No business was more profitable than dwarf pear culture.

The President exhibited the measurement of two pear trees eight years planted, one grown in grass since set out, the other having received ordinary culture, the trunk of the former being four inches and three-eighths in circumference, and the latter two feet nine inches.

After some remarks on grape growing, and the passage of a resolution of sympathy with the President of the Society in his affliction, the Society adjourned to meet in Rochester in September next, at the call of the Council.

Veterinary.

Mistake in Treatment of Horses.—A correspondent of the *Country Gentleman* thus alludes to an error frequently committed in driving horses: Among the mistakes in the driving and general management of horses which have come under our observation, one has often surprised us on account of its inconsistency with what seem to us very plain and obvious principles. We refer to driving quick—as quick as at any other time during a journey—immediately upon starting, when the horse or horses are often as full as feeding and watering can make. Even when a horse has been fed and watered an hour or two before starting upon a journey or drive of several miles, it is proper to drive slowly for the first mile or two; but when the feeding and watering have been more recent, the propriety of going along at a jog or easy pace is still more urgent. Colic, founder, broken wind, have all of them, resulted from too rapid driving when a horse was full. A friend of ours, a physician, who had occasion sometimes to violate this dictate of good management in his haste to reach some case of great urgency, once informed us that when he drove at a rapid rate *immediately* after feeding, his horse would scour almost invariably, and seem to suffer considerably.

Saddle Horses.—The best height for horses intended as hacks of the first class, is about fifteen hands. Tall horses are not so good for hacks as those of lower stature, as they do not move with so much ease and lightness, wearing their legs more, causing more fatigue to their riders. The majority of tall horses are now-a-days tall only because they have long legs, which are very objectionable, as they never wear well, and are mostly allied with a very shallow body. These horses may do well enough when a showy appearance is the only object in view. —*London Review.*

Diarrhœa in Lambs.—Diarrhœa or scouring in young lambs often arises from coagulation of milk in the stomach, and is then called the white skit; the treatment for which consists in giving an alkali, such as magnesia, twice a day in gruel, followed by three or four draughts of Epsom salts and ginger. If it is from simple relaxation of bowels produced by fresh grass, a dose of the following cordial will be useful:—Prepared chalk 1 oz.; powdered ginger 2 drachms; powdered opium ½ drachm; peppermint water ½ pint. Dose—one or two tablespoonfuls twice a day. Soft American linseed-cake may be given as food.—*American paper.*

Domestic.

New Remedy for Neuralgia.—The *Journal de Chemie Medicale* contains an account of the discovery of a new and powerful sedative in neuralgia, just discovered by Dr. Field. The substance used is nitrate of oxyd and glycile, and is obtained by treating glycerine at a low temperature with sulphuric or nitric acid. One drop mixed with 99 drops of spirits of wine, constitutes the first dilution. A case of neuralgia in an old lady, which had resisted every known remedy, was completely cured by this new agent.

Recipes.

From the American Agriculturist.

To Settle Coffee.—J. Armstrong, Columbia County, Wis., recommends the following method: Brown the coffee in the usual manner, and when nearly cool, break an egg upon it, and stir it well, to have each kernel coated. The coffee should not be warm enough to cook the egg. Use one egg to a pound of coffee; let it dry well before grinding. When boiled for use it will settle without further trouble.

Bread Cake.—To one cup of light bread sponge, add one egg, one cup of flour, half a cup of butter, half a teaspoonful of saleratus, spice to your taste; stir well together, and put immediately in the oven; bake as for bread.

Pork Apple Pie, contributed by "L." Line a deep plate with pie crust, pare and slice apples enough to nearly fill it, sweeten and spice to the taste. Cut slices of pork very thin; lay them over the apple, and cover with the top crust. Bake two hours. [Rather greasy to digest well.]

Mrs. E. Gilbert, Lenawee Co., Mich., contributes the following three:

Cheap Sponge Cake.—One cup white sugar, two tablespoonsful butter, one cup sweet milk, 1 teaspoonful cream tartar, ½ teaspoonful soda. A little less than a pint of flour, 1 egg and nutmeg to taste.

Cookies—One cup butter, two cups sugar, one cup sweet milk, half teaspoonful soda, nutmeg or caraway, for spice; mix with flour until quite stiff, roll thin and bake quick. These I think superior to those made with eggs. They improve with age if kept in a covered stone jar.

A Good Plain Gingerbread—One coffee cup thick cream, one cup molasses, one teaspoonful soda, ginger to taste, a spoonful of salt. Stir quite thick with flour, and bake in square tins.

To Keep Hams in Summer—Contributed to the *Agriculturist*. Cut it in slices and trim off the rind and outside; fry it about half as much as you would for the table. Pack it tightly in jars; pour over it the fat that fries out, and enough lard to cover it; close the jar tight, set in a cool place, and it will keep fresh all summer.

Baked Indian Pudding—Contributed to the *Agriculturist* by Mrs. L. Bright, Isabel Co., Mich. Scald ten tablespoonfuls of Indian meal in three pints of sweet milk; add an ounce of butter, and sugar or molasses to sweeten to the taste. Bake two or three hours.

Miscellaneous.

Steam-Boat Racing.—Sir Charles Lyell, when in the United States, received the following advice from a friend:—"When you are racing with an opposition steam-boat, or chasing her, and the other passengers are cheering the captain, who is sitting on the safety-valve to keep it down with his weight, go as far as you can from the engine, and lose no time, especially if you hear the captain exclaim, 'Fire up, boys; put on the resin!' Should a servant call out, 'Those gentlemen who have not paid their passage will please to go to the ladies' cabin!' obey the summons without a moment's delay, for then an explosion may be apprehended. 'Why to the ladies' cabin?' said I. 'Because it is the safe end of the boat, and they are getting anxious for the personal security of those who have not yet paid their dollars, being, of course indifferent about the rest. Therefore never pay in advance; for should you fall overboard during a race, and the watch cries out to the captain, 'A passenger overboard,' he will ask, 'Has he paid his passage?' and if he receives an answer in the affirmative, he will call out, 'Go ahead!'"

Night Air.—Why should man be so terrified at the admission of night air into any of his apartments? It is Nature's ever-flowing current, and never carries the destroying angel with it. See how soundly the delicate little wren and tender robin sleep under its full and immediate influence, and how fresh, and vigorous, and joyous they rise amid the surrounding dewdrops of the morning. Although exposed all night long to the air of heaven, their lungs are never out of order, and this we know by the daily repetition of their song.—*Waterton.*

Amusement.—The natural and only safe mode of enjoying amusements is in common. Where one sex enjoy their amusements alone they are sure to run into excess. The division of the human family into man, woman, and child, father, mother, brother, and sister, is the only conservative principle of society; they act and re-act upon each other like the different seasons of the earth. Each age and each sex has its peculiar characteristics, that serve to modify and check certain mischievous tendencies in the other sex, and in others of different ages. For one sex to attempt to amuse themselves agreeably and innocently alone, is like trying to make music on a one-stringed instrument.

Proverbs worth Preserving.—Hasty people drink the wine of life scalding hot. Death's the only master who takes his servants without a character. A sour-faced wife fills the tavern. Content's the mother of good digestion. When pride and poverty marry together, their children are want and crime. Where hard work kills ten, idleness kills a hundred men. Folly and pride walk side by side. He that borrows, binds himself with a neighbour's rope. He that's too good for good advice, is too good for his neighbour's company. Friends and photographs never flatter. Wisdom's always at home to those who call. The firmest friends ask the fewest favours.

Good Advice.—A young Irishman (placed by his friends as student at a veterinary college) being in company with some of his colleagues, was asked, "If a broken-winded horse were brought to him for cure, what he would advise?" After considering for a moment, "By the powers," said he, "I should advise the owner to sell as soon as possible."

Ten parts of tin combined with one hundred of copper, form bronze, and is the usual composition for statues. Common bell-metal is composed of three parts of copper and one of tin. For very small bells, a small portion of zinc improves the tone. Speculum metal for telescopes is composed of equal parts of tin and copper. It is white, very hard and close in the grain, and receives an exquisite polish.

The fibre of a single silk cocoon is 1,520 feet in length.

Transactions.

COUNTY AND TOWNSHIP SOCIETIES.

Continued from page 382.

ARRAN.—Sixty-eight members; amount of subscriptions, $70.50; balance from 1858, $26.73; share of public grant, $71; total receipts, $168.23. Amount paid in premiums, $66.34; expenses, $10 47; balance in hand, $91.42.

CARRICK.—Forty-five members; amount of subscriptions, &c., $61.50; balance from previous year, $22.80; share of public grant $45; total received, $129.30. Amount paid in prizes, $77.25; expenses, $18.52; balance in hand, $33.55.

CULROSS.—Thirty-five members; amount of subscriptions, $40; balance from 1858, $10.16; Government grant, $45; total received, $95.16. Amount paid in premiums, $71.75; expenses, $13.77; balance in hand, $9.64.

GREENOCK.—Thirty-eight members; amount of subscriptions, $40; amount paid in premiums, $61.25. The report is imperfect.

PAISLEY.—Forty-two members; amount of subscriptions, $42; balance from 1858, $24.88; Legislative grant, $38; total received, $103.88. Paid in premiums, $69.50; expenses, $12.57; balance in hand, $22.81.

SAUGEEN.—Forty-three members; amount of subscription, $43; balance from previous year, $118.62; total receipts, $161.62. Amount paid in premiums, $64.50; refunded to County Society, $70; expenses, $20.30; balance in hand, $6.82.

CARLETON.

COUNTY SOCIETY.—Amount of subscriptions, $357; balance from previous year, $14.17; deposited by Township Societies, $252; received for seeds sold, $11.20; sundries, $7.50; Legislative grant, $578.57; total receipts, $1220.44. Amount paid Township Societies, $659.14; paid in premiums, $398; copies of *Agriculturist*, $10; expenses and sundries, $153.30.

Officers, 1860.—President, Dr. Hunter, Rockliffe; Vice-Presidents, Jno. Robertson and W. T. Aylen, Nepean; Secretary and Treasurer, Jno. G Bell, Ottawa.

Extracts from Report.

At the Annual Exhibition in the City of Ottawa, in October, there was less live stock shown than usual, but what there was was of superior quality. Of produce, several parcels of wheat were very good—63 to 63½ lbs. per bushel. Of other grains the show was much the same as usual. Roots, turnips, and beets, were very superior, and exceeded anything heretofore seen in this place. There was a good display of dairy produce, and of excellent quality.

For home made cloth the samples were very good. Blankets, flannels and checked flannels were very superior.

The crop this year has been much damaged by frost and drought. We had frost every month of the season. In June, about 14 nights frosty—July, cold and dry to the 25th; August, generally cool and dry,—thermometer often at and below 50°. September 2nd and 3rd, frost; 14th frost and snow; 15th and 16th, frost killed corn and potatoes, and 28th, frosty. Upon the whole, it was the most untoward season which we have had since 1836. Wheat is not equal to last two years, averaging 6 bushels less per acre. Hay is not over half an average. Oats under an average. Peas, in some cases, very poor. Corn, the frost in September killed it altogether. Potatoes are a fair crop, of good quality. Turnips and beets are very good.

Peruvian guano was tried with advantage on potatoes, corn and turnips. 3 cwt. per acre on Swedish turnips gave 800 bushels of 60 lbs. American guano was also tried, but was not near equal to the Peruvian. Fall wheat being much winter killed, a field was ploughed and sown with spring wheat, top-dressed, with one cwt. Peruvian guano per acre, with good effect. The soil, sandy and very loose, was rolled with a Croskill roller, with good effect.

Some improvements have been made in draining. One farmer has laid over 1200 rods with sawed hemlock, at about 1s. 10d. per rod. Some new implements have been used this year, in particular, a harrow, got up by Blesdell & Co., Victoria Foundry. For harrowing lea sod it is superior to anything used here, as it does not drag the furrow, but cuts up without breaking. Cost about 36s.; weight 180 lbs. A Croskill rolller has been made by T. M. Blasdell, which does good service. It is about 36 cwt., and costs £40. Your directors would call attention to the importance of giving encouragement to some one to make draining tiles.

Foreign manures are now brought here while a large amount of bones is wasted. It is said that bones are collected in Ottawa, and sent to a great distance to be ground. Some of these bones are brought back to Ottawa again, to be used as manure. Would it not be well for our Society to try to get some one about Ottawa to erect a bone mill here. All the manures we can get are needed.

TOWNSHIP BRANCHES.

HUNTLY.—Amount of subscriptions, $80; share of public grant, $119; amount paid in premiums, $190.07; expenses, $9.

MARCH.—Twenty-eight members; amount of subscriptions, $80; share of public grant, $119.25; total receipts, $201.25; amount paid in premiums and expenses, $249; balance due Treasurer, $47.75.

NORTH GOWER AND MARLBOROUGH.—Twenty-seven members; amount of subscriptions, $52; Legislative grant, $84; balance from 1858, $24.33; total receipts, $160.33. Paid in premiums, $105.75; paid county society, $10; expenses, $12.75; balance in Treasurer's hands, $31.83.

RICHMOND AND GOULBURN.—Forty-one members; amount of subscriptions, $48; balance from previous year, $47.58; Government grant, $54.62; total received, $150.20. Amount paid in premiums, $126.44; copies of *Agriculturist*, $10; expenses, $9.05; balance in hand, $4.71.

DUNDAS.

COUNTY SOCIETY.—One hundred and thirty-seven members; subscriptions, $145; balance from 1858, $71 67; deposited by township societies, $106; admission fees at exhibition, $105.35; public grant, $385.18; amount refunded by Mountain Society, $18.30; total amount received, $831.50. Amount paid township societies, $296.80; premiums, $326.12½; expenses, $103.85; balance in Treasurer's hands, $119.72½.

Officers, 1860—President, George Doran, Iroquois; Secretary and Treasurer, Jno. S. Ross, Iroquois.

Extract from Report.

The directors of the Dundas County Agricultural Society, learn with great satisfaction, the interest manifested by the Board of Agriculture for Upper Canada in eliciting full and accurate reports from the various counties of Upper Canada.

A correct and reliable description of each, their history, cababilities and progress, and, as a consequence, their comparative inducements to immigrants and others, who may have made up their minds to engage in agricultural pursuits, is a desideratum which even the elaborate Directory of Canada, and the copious and pains taking census of 1851-2 have not supplied. A great deal relating to the several counties of Canada may indeed be gleaned from these sources; but it is a work of time and difficulty to separate them from the voluminous mass of information respecting other parts of the Province with which they are associated.

We have long desired to see a full report of each county, complete in itself, and we think we cannot better respond to the expressed wish of the Board of Agriculture than by collecting from all reliable sources all that is known of our county, and adding from local information many matters of interest not to be found in the works referred to. And the belief that such a report would be particularly interesting to the inhabitants of this county, has induced us to enter freely upon many topics, which would not necessarily have been embraced in a strictly agricultural report.

We have attempted to sketch the history of the county from its first settlement, and to give a brief outline of the origin and progress of our religious and social institutions, which, a part from the agricultural matter, cannot fail to interest at least the residents of the county.

The County of Dundas, one of the United Counties of Stormont, Dundas and Glengarry, formerly known as the Old Eastern District of Upper Canada, is bounded by the River St. Lawrence on the south; on the east by the County of Stormont; on the north by the Counties of Russell and Carleton, and on the west by the County of Grenville.

It thus lies nearly midway between Montreal and Kingston, and a line drawn at right angles to the River, would intersect the Ottawa River, at or very near the City of Ottawa, the future capital of Canada, the distance between these two points being about 45 miles.

The County embraces an area of about 250,000 acres, whereof in 1858, 237,000 acres were assessed at a value of £$2,000,000. The population of the County in 1852, the date of last census, was 13,865, of whom 10,478 were natives of Canada, 2,214 of Ireland, 500 of the United States, 336 of

Scotland, 252 of England, 54 Indians, and 31 from the Lower Province and other parts. A large increase has been made to the population since '52. We place it now at 16,000; the increase by immigration has been chiefly from the countries above enumerated, and perhaps nearly in the same ratio from each.

In 1832, the population was 8,922, and the assessed value £51,000; thus in 28 years the population has increased fourfold, and the value of the County tenfold. It has doubled its population in 14 years, Upper Canada in the meantime doubling in 10 years, between 1841 and 1851. But the enormous influx of emigrants into Upper Canada, marks that period as somewhat above the average ratio of increase, and it is well known that the great tide of emigration flowed west in an unbroken stream till it reached Toronto or Hamilton, very few indeed landing in these parts, beyond those who happened to have relations in the County. Our ratio of increase in population therefore compares very favourably with the rest of the Province.

Early History.—The proclamation of Peace between Britain and America, in 1783, witnessed at least a partial fulfilment of the prophecy, that "Men shall beat their swords into ploughshares, and their spears into pruning hooks." The brave and loyal subjects who during the fierce revolutionary struggle remained faithful in their allegiance to the British Crown, being no longer required to fight their country's battles, were now destined in a very different way to add to their country's greatness, and it was announced that liberal grants of land in Canada would be freely given, to the now disbanded soldiers.

A proclamation was now issued that all who wished to continue their allegiance to Britain, should rendezvous at certain points on the frontier: these were Sacket's Harbour, Oswego and Niagara. Of those who came eventually to Dundas, a part assembled at Niagara, and the rest at Oswego. They were all originally from the fertile valley of the Mohawk River, in the then Province of New York. Those who settled in Williamsburg appear to have met at the rendezvous at Niagara, and were thence conveyed by the British Government to Carlton Island, opposite Kingston, where they spent the first winter in tents and huts provided for them. There were about 80 families altogether, who during this time were fed and clothed by Government. The reason of their detention here was, that the County of Dundas upon the St. Lawrence was being surveyed for their occupation, and they there remained until that survey was completed.

They landed in Dundas on the 20th of July, 1784, they were chiefly, if not altogether disbanded soldiers of Sir John Johnston's regiment, composed chiefly of Germans. 50 families were Lutherans, and the remainder Presbyterians, and were henceforth known by the name of United Empire Loyalists, subsequently abbreviated into U. E's, and thus was formed the nucleus of a mighty colony, which in after days acquired the illustrious name of the "Brightest Jewel in the Imperial Diadem."

They drew their land in the following manner. Every man capable of bearing arms was entitled to assume the name of a U. E. Loyalist. Some of them indeed were of a tender age. The late Colonel Crysler, then a drummer in the regiment, was in his 15th year, but was placed upon an equal footing with his father, and at a distant day each of his numerous sons and daughters ranked as children of the U. E.

Each soldier was entitled to draw 100 acres in front, and 200 in the rear; this was the soldier's bounty. If married and with a family, or if at any future time married, he was entitled to 50 acres for his wife and 50 for every child; this was his family land. Besides all this, each son and daughter on coming of age, or at marriage, was entitled to a further grant of 200 acres each. These last resulted in the greater part of Mountain and Winchester being drawn by children of U. E. Loyalists.

As they became of age, each repaired to Cornwall, and presented a petition to the Court of Quarter Sessions, setting forth their right, and having properly identified themselves and complied with the necessary forms, the Crown Agent was authorized to grant them a deed for 200 acres; the expense incurred amounting to about $2. Settlers continued to drop in from the States from 1784 to 1798. All were placed upon an equal footing. All who preferred British rule to that of the Republic, were designated U. E's, and entitled to all the privileges attached to the name.

In addition to the land as above described, they were provided with food and clothes for three years, or until they were able to pro-

vide these for themselves, seed to sow on their clearances and such implements of husbandry as were required: each received an axe, a hoe and a spade. A plough and one cow were allotted to two families; a whipsaw and a cross-cut to every fourth family; and even boats were provided for their use and placed at convenient points of the river. These were of little use to them for a time, as the first year they had no grists to take to mill, and the long Sault Rapids lying between them and Cornwall, whence they received their rations, it was found to be a very difficult matter to bring them by water. In many cases the settler went thither in the fall or in the winter and dragged up on the ice by the edge of the river as much as he could draw on a hand sled, a distance of 25 miles; and we are even credibly told of one who in a similar manner went to Montreal and returned dragging behind him an iron pot wherein to cook his potatoes. At this time they had the choice of but two mills, they were literally placed between two extremes, Gananoque above or the Cascades below, equidistant about 60 miles. They took their wheat in boats and canoes, which the Indians now taught them to make, to one of these places, several parties joining together to take 40 or 50 bushels at a time with 5 or 6 men to work the boat, stemming the rapids of the Coteau and Long Sault, or the Du Plat and Galouse.

These and innumerable other difficulties met and surmounted by the early settler might well put to the blush his less hardy descendant, before he utters the now frequent complaint of *hard times*. There being ample employment on the settler's farm, yet uncleared, for all his sons, there was little inducement for them to think of setting up for themselves. As a matter of consequence the lands they had drawn were of little value to them. In the meantime U. E. rights became a staple article of commerce and were readily bought up by speculators, almost as fast as they came into the hands of the rising generation. A portion of what remained were soon resold in payment of taxes by sheriff's sale, and these too became the property of land jobbers.

Many of the lots thus drawn were never seen by the parties who drew them and their comparative value was determined rather by their distance from the river than by their intrinsic quality, so that lands in Winchester which in a very few years were to bring $20 an acre were considered worthless, and lots even more favourably situated were sold if not for an old song, at least for a new dress, worth perhaps $4 or $5. The usual price of fair lots was from $25 to $30, some even as high as $50 per 200 acres. At $30 these would be 15 cents an acre. These were sold to settlers as they gradually came in from Britain and the States at from two to four dollars per acre, yielding a clear profit to the speculator of 1000 per cent for his investment, in comparison with which the exorbitant interest of modern days sinks into insignificance.

At this time there was a great deal of valuable timber in the county. Huge pine trees were cut for ship masts. A notable one is still often spoken of by many who saw it, which, having broke in falling was cut off at 70 feet; at 35 feet from the butt it measured 47 inches in diameter and was computed to contain 1058 cubic feet. It was dragged from the woods by 16 pair of horses and sold in Quebec as a bolt sprit for $200.

Of white oak, averaging when dressed from 45 to 65 feet of the best quality, there was an abundance, which found a ready market at from 2s. 6d. to 3s. per foot. What was not suitable for timber was made into stave blocks.

At a later period large quantities of elm and ash were sent to market from this county, white beach and maple were piled up in log heaps and burned, and the ashes carefully gathered and sold to be made into potash.

The first operation of the new settler was to erect him a shanty. Each with his axe on his shoulder turned out to help the other, hence probably the origin of making bees. In a short time every one in the little colony was provided with a snug log cabin, roofed over with hollow logs split in two, and an inverted layer covering the joint; the space between the logs was chinked, and plastered with mud: the cross-cut saw was produced; and a door and small window cut out, and an ample hearth rudely built with stone completed the shanty, strangely contrasting with the convenient appliances and comforts of modern days.

The summer was occupied in clearing up the land, and in the fall the wheat was hoed in by hand. In winter, every available hand was in the woods making timber and preparing for another fallow. The winters were long, cold, and steady, and the fall wheat seldom saw the light of day till the

end of April. The weather then setting in warm, the dormant fields of wheat early assumed a healthy and luxuriant vegetation. Thistles and burdock, the natural result of slovenly farming, were alike unknown, and neither fly nor rust in these good old days were there, to blight the hopes of the primitive farmer. The virgin soil yielded abundantly her increase. Ere long there was abundance in the land for man and beast, and with food and raiment the settler was content.

Character of the Early Settler.—There was that in the character of the early settler that commands the admiration and respect of all who ever were brought into contact with them. Naturally of a hardy and robust constitution they were neither appalled by dangers nor difficulties, but manfully looked them in the face and surmounted them all. Amiable in their manners, they were frugal, simple and regular in their habits—scrupulously honest in their dealings, they were affectionate in all their social relations, hospitable to strangers, and faithful in the discharge of every duty.

As for their moral habits and religious character, we are proud to reflect that although without any clergymen of either religious persuasion, the Lutherans and Presbyterians from the beginning lived in good fellowship and peace beside each other, and united in observing the sanctity of the Sabbath, in holding lay reading and in singing hymns.

Most of the early settlers have long ago passed away—a few here and there still remain, living exemplifications of the excellence of character which we have thus imperfectly described.

Dawn of Improvement.—In the year 1788 the first grist mill in the County was built by Messrs. Coons and Shaver in Matilda. It contained but one run of stones and had a small saw mill attached to it. It was built upon a point of the river about 1 mile below the present village of Iroquois—the saw mill never worked well and was soon abandoned. The little grist mill was however very successful—would grind 100 bushels per day and turned out better flour than half of the mills of the present day.

Soon after this, another mill, upon what was then considered a magnificent scale, was erected by John Monroe. This had 3 or 4 run of stones and a gang of saws and worked admirably for 10 years when it unfortunately took fire and burned to the water edge. This was immediately replaced by another, but this time with only one run of stones. It was cheaply constructed and in every respect inferior to its predecessor, but stood 35 years, when a large field of ice striking it on the point carried the mill off bodily, or at all events demolished it These several mills were all propelled by the current of the St. Lawrence. A few stores were now added, the first in the neighborhood appears to have been Richard Louck's, a mile below the present limit of Dundas. At this early period the County of Dundas, if it had then the name it now bears, formed part of what was called the Lunenburg District—which extended from Gananoque to the present Province line. The whole extent of coutry where Lancaster now stands, was one unbroken impassable and seemingly interminable swamp.

(*To be continued.*)

Editorial Notices.

The Edinburgh Review, July, 1890. New York: Leonard Scott & Co; Toronto: H. Rowsell. The present number contains an unusual variety of articles—no less than twelve—on the subjects of the most striking interest in the literary and political world. Our readers cannot be too often reminded of the practice of this and the other leading reviews of giving prompt attention to the topics of the day, and by their deliberation and research correcting the hasty impulses of the moment. The mere titles of the principal articles in this number of the Edinburgh are sufficiently attractive, and need no comment from us to indicate their scope or purport. The principal articles are: Chevalier on the probable Fall in the Value of Gold; Latest Geological Discoveries; The Patrimony of St. Peter; Mrs. Grote's Memoir of Ary Scheffer; Prince Dolgoroukow on Russia and Serf Emancipation; Correspondence of Humboldt and Varnhagen von Ense; Cardinal Mai's Edition of the Vatican Codex. Price of one Review $3 a year. Price of the four Reviews, $8, "Blackwood" and the four Reviews, $10.

The Westminster Review, July, 1860. New York: Leonard Scott & Co; Toronto: H. Rowsell.—Contents: Strikes—Their Tendencies and Remedies; The Mill on the Floss; Rawlinson's Bampton Lectures for 1859; The Post Office Monopoly; Ary Scheffer; The Irish Education Question; Germany—its Strength and Weakness; Thoughts in Aid of Faith; Grievances of Hungarian Catholics; The French Press; Contemporary Literature.

The Fruit Preserver's Manual—Reviewing the different theories and describing the best methods of preserving green corn and peas by drying, and other fruits and berries by enclosing in jars or cans, with instructions for successfully performing the requisite operations, &c. This little pamphlet is we presume meant chiefly as an advertizing medium for certain kinds of preserving cans, but appears to contain some very useful information. Published by J. Culver, Rochester.

The Michigan State Fair is to be held at Detroit, on Oct. 2nd, 3rd, 4th, and 5th. The Society offers an extensive list of premiums.

Improved Berkshires.—R. L. Denison, Esq., of Dover Court, Toronto, offers for sale 25 Superior Improved Berkshire Pigs.

Markets.

TORONTO MARKETS.

Tuesday, Aug. 14, 1860.

The supplies to-day were, on the whole, tolerably fair, except in wheat, which did not offer as freely as had been anticipated. Of Fall Wheat two loads of old grain sold—one at $1 23 and the other at $1 25 per bshl. Four or five loads of new wheat realized from $1 10 to $1 21 per bshl. Spring Wheat is nominal at from $1 05 to $1 08. Oats—About 500 bshls. offered. Prices are falling, being now from 31 to 33c per bshl. Peas—250 bshls sold at from 55 to 60c. Barley—150 bshls at from 55 to 60c. Hay is worth from $9 to $12 per ton. Straw—$5 per ton.

NEW YORK MARKETS.

New York, August 14.

Flour—receipts, 2,959 brls; market dull and heavy; sales, 8,700 brls at $5 15 to $5 20 for superfine State; $5 25 to $5 35 for extra State; $5 10 to $5 15 for superfine Western; $5 25 to $5 45 for common to medium extra Western; $5 40 to $5 45 for inferior to good shipping brands extra round-hoop Ohio.

Canadian Flour—dull and drooping; sales 400 brls at $5 to $5 10 for superfine; $5 20 to $7 50 for extra.

Rye Flour—steady at $3 40 $4 20.

Wheat—receipts 57,370 bshls; market dull and drooping; sales 38,000 bshls at $1 23 to $1 26 for new winter red Western; $1 28 for amber Illinois; and $1 30 to $1 35 for new white Western, and $1 50 for white Kentucky,

Rye—quiet and steady.

Barley—dull.

Corn—receipts, 52,255 bshls; market dull and drooping; sales, 78,000 bshls at 62 to 63c for sound mixed Western; 67c for choice Western round yellow.

Oats—shade better and more doing at 36 to 39c for Western and Canadian, and 39 to 39½ for State.

Pork—dull; sales 400 brls at $18 50 for old mess; $19 18 to $19 25 for new mess.

BUFFALO MARKETS.

Buffalo, August 14.

Wheat—in firm demand, and market ½ to 1c lower; sales 13,000 bshls red Western at $1 08¼; 5,800 bshls white Indiana at $1 11; 4,000 bshls do at $1 12, and 1,400 bshls old white.

Canadian—at $1 18 to $1 21½.

Corn—market scarcely so firm; sales, 5,000 bshls this morning at 50c.

Oats—market 1c lower; sales 9,500 bshls this morning at 29c.

Nothing doing in other articles.

PROVINCIAL EXHIBITION.

The Provincial Exhibition will be held at Hamilton on the

18th, 19th, 20th & 21st September, 1860.

For Particulars see Bills and Prize Lists, which may be obtained of Secretaries of Agricultural Societies and Mechanics' Institutes throughout the Province.

Hugh C. Thomson,
Sec. Bd. of Ag.

Board of Agriculture Office,
Toronto, Aug. 15th, 1860.

Ayrshire Cattle—Patrick R. Wright, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale are liberal.

Full Pedigree of all animals—U. C. Stock Register.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten orders and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, SEPTEMBER 1, 1860. No. 17.

SEPTEMBER.

The beginning of this month will be occupied with the finishing of Autumn wheat sowing, where that operation has not been already concluded. We have already entered upon this subject pretty fully. When the seed has been chosen and properly sown and covered in, in well prepared land, particular attention must be given to the drainage of the field. Where land is not thoroughly drained by tiles, which is of course but rarely the case at present in this country, or where there is not a good natural drainage through the subsoil, the open furrows between the lands should be cleaned out to the full depth that the land has been ploughed, during the fallow, or if possible a little deeper, so that the drainage may not be over the surface and by evaporation solely, but that the superfluous water may also be allowed to escape to some extent by filtration through the worked surface soil into the dead furrows. The cross drains should of course be deeper than the parallel open furrows, and should be carefully cleaned out at the intersections, and due attention given to the outlets, not only at the time of sowing the wheat, but also during the autumn and spring. Many an acre of good wheat is lost from neglect in this particular.

One of not the least engrossing occupations of the farmer during the middle and latter part of this month, will be the attending of agricultural Shows, Township, County, and Provincial. After the arduous labors and anxieties of the spring, summer and harvest seasons, the farmer can afford to take his holiday, and to allow his wife, sons and daughters to participate in the same. But he attends the fair not merely for relaxation. He goes also on business intent, and will bring home a superior bred animal, or an improved implement, to improve his herd or flock, or his practice in cultivation at home. He also goes to obtain instruction, and will pick up many a new idea, which will be of service to him in the improved management of his business henceforth.

Potatos will require to be taken out of the ground during the middle or latter part of this month. They should be thoroughly ripe before being dug; but as soon as quite ripe they ought to be taken up, to avoid the danger of wet weather and rot. Potatoes should be but lightly covered at first after being dug, so that the air may circulate through them, and dry them to some extent before they are covered in for the winter.

Fall ploughing, for next spring's crops, or next year's fallow will be required to be attended to as opportunity offers. The drainage of fall ploughed land must not be neglected, any more than of that in crop. If water is allowed to lodge and accumulate, the land will not be in near so good order in spring, or ready for sowing nearly so early as otherwise.

Cattle, horses, sheep and pigs should receive due attention, to keep them in good pastures, and as the cold nights approach, help them with a little green food, so that they may be in good heart on the advent of winter.

The Exhibition.

As we announced in our last, the exhibition has been appointed to take place at Hamilton, on the 18th, 19th, 20th and 21st September. The preparations are proceeding in the most satisfactory manner; and there is not the least doubt that except in the case of some unforeseen casualty this will be the most brilliant exhibition which has ever been held in the Province. The particular occasion on which this exhibition takes place, the visit of the heir to the throne of the British Empire, is one not likely to occur again for many years. We advise all of our readers by no means to lose the opportunity of being present at it, and taking some prizes, if possible. At the date of writing, August 30, fully 3000 entries of articles for exhibition have been received, and many no doubt will yet come to hand. Those who have not yet made their entries should do so immediately. We direct attention to an advertisement on this subject in another column. Particular attention is desired to the part of the advertisement relating to the placing of the articles on the grounds. As it is now ascertained that His Royal Highness and suite will probably visit Hamilton one day earlier than was anticipated, it will be absolutely necessary that every thing shall be brought to the grounds on Saturday and Monday, except cattle, and the cattle early on Tuesday morning, so that every department of the exhibition may be fully arranged early on Tuesday morning.

Editorial Correspondence.

[No. 5.]

THE EXHIBITION OF THE ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

DUBLIN, July 28th, 1860.

I will now attempt to give the readers of the *Agriculturist* a general idea of this great national gathering of Irish agriculturists, which was held in the ancient city of Cork during the present week. Having spent nearly a week in this interesting locality, I shall reserve for another communication some observations on the state and prospects of agriculture in the southern portion of the kingdom, and confine myself at present to the more prominent characteristics of the show, which I am bound to say both in the amount and quality of the material exceeded my expectations. The spacious corn market afforded excellent accommodation for stock with very little additional outlay, and the implements and machines were conveniently arranged under covered sheds in a very extensive yard adjoining, and the whole arrangement was exceedingly commodious and satisfactory.

The number of entries in the pure shorthorn class was 92, which contained several animals of very superior merit, bred in the country. I was told that this class, in point of number, and, perhaps, in quality, hardly came up to the usual shows of the Royal Dublin Society, which is more favorably situated for the central and northern parts of the country, where this celebrated breed is sedulously cultivated by the more wealthy of the landholders and farmers. In Devons there were only eight entries, and the Ayrshires amounted to 22. The Herefords were not represented, I think, by a single specimen. The Kerries comprised 34, with only a few specimens of West Highlanders, Galloways and Polled Angus. The number of Dutch Cattle and crosses was considerable, several of the latter possessing excellent points, and of good size. Horses of all kinds amounted to about 80; sheep 180 lots; and pigs, 40.

The first prize of 15 sovereigns in the class of aged Durham bulls, was awarded to ***Statesman***, 5 years, bred and owned in Scotland. He is a very fine animal, but decidedly inferior to Col. Townley's Bull, which won the first prize in the same class at Canterbury. He is wide chested, a good loin and quarters, but somewhat coarse in hair and inferior in the cups. The second prize bull, and one or two others bred and owned in Ireland, clearly indicate the progress which has of late years been made in this important department of rural affairs in this country. A very remarkable animal among the Shorthorns was a four year old cow, ***Rosette***, owned by Mr. Eastwood, Burnley, Lancashire, a neighbor of Col. Townley, and bred by Mr. W. Wetherall, of Darlington. I saw this splendid animal at the Royal English Show at Canterbury, where she won the 1st prize against Mr. Booth's ***Grand Queen Mab***, an animal of great beauty and of the highest breeding. In the Cork show ***Rosette*** not only won the first prize in her class, but also the ***Purchell Cup***, of the value of 100 sovereigns, and the *gold medal*, thereby denoting that she was the best of all the prize cows in the yard. In fact I never saw before an animal of such width and massive, yet beautiful appear-

ance, the whole contour, especially the eyes and head, denoting the highest style of breeding. Much of the young stock in the shorthorn class is of a promising character, and cannot fail of doing much for Ireland. *Soubadour*, a young bull of 18 months, bred in Ulster, is particularly fine, both as regards touch and proportions, and deservedly obtained the 1st prize of 15 sovereigns and the gold medal. Among the Devons and Ayrshires, though upon the whole respectable, there was nothing that calls for particular notice, in a general and hurried sketch like the present.

The greatest novelty to me among the horned cattle was the *Kerries*, which I was informed is the sole remaining native breed that Ireland now possesses. These are exceedingly small and pretty looking animals, mostly black, and somewhat resembling the Bretons of Northern France, or the diminutive races of the Welch Mountains. The cows of this breed yield a large amount of milk of good quality in proportion to their size and the quantity of food they consume, and when well fattened their flesh is of excellent quality. I saw them in large numbers among the mountains and valleys of the remarkably wild and picturesque County of Kerry, apparently thriving on coarse and scanty food. This race, if properly attended to, might possibly be made a fancy breed for certain parts of England or Canada; they are in my judgment preferable to the Bretons. Of the *Dutch* breed there were several apparently good specimens, but inferior to those I saw at the Paris Exhibition. They are rather large framed animals, of black color, with large patches of white, and the cows yield a large quantity of milk, not however, I was told, of the richest quality; therefore well adapted to cow-keepers in the neighborhood of large towns. Among the crosses or grades, were several out of Dutch cows from Shorthorn bulls; a result I should think somewhat doubtful. I was informed, however, by several farmers that cross breeds in Ireland are generally the best adapted to dairy purposes.

Among the Horses were some first rate animals, with others, (as is usually the case on these occasions), that ought not to have been brought forward. The best draught stallions were represented by the Suffolk and Clydesdale. Mr. Christy's *Suffolk Champion*, bred in England, a truly magnificent animal, almost absolutely perfect, was deservedly awarded the first prize and challenge cup, and cannot fail to do good service for Ireland. There were a few excellent specimens of hunters and roadsters, and the fifty sovereigns challenge cup, and a prize of twenty five sovereigns given by the Local Committee were awarded to *Planet*, as the best weight-carrying stallion, at present owned by an Irish gentleman at Kilmallock, and bred by the late lamented Lord George Bentinck, of England, to whom the world is largely indebted for no small portion of improved pure blood.

In sheep I was told the show was superior both in quantity and quality to any of its predecessors. And although much inferior in both respects to what I saw at the English Exhibition at Canterbury, there was a considerable number of very fine animals, which it would be difficult to beat any where. Indeed the second prize Leicester Ram at Canterbury was beaten at Cork. There were also some very good specimens of sheep, especially shearling rams, of the class of long wools, not qualified to compete as Leicesters, among them a few Cotswolds, possessing respectable merit. Of pure Southdowns the least said the better, after one had seen at the English Show the many beautiful and all but perfect specimens of this most beautiful breed, belonging to Jonas Webb, Rigden, and the Duke of Richmond. The Southdowns seem either not suited to Ireland or they have not as yet had proper attention paid to them. But in Shropshire Downs, and a few other varieties of short woolled sheep, the exhibition had several good specimens. The County of Cork carried off more than its proportion of sheep prizes, indicating that its dry and undulating surface resting on lime stone, is better suited to sheep culture than some other parts of the island. Indeed as a whole Ireland cannot be considered both as regards soil and climate so well adapted to sheep as either England or Scotland, but it is, perhaps, superior to both for the raising of cattle; and without neglecting sheep, it is to the latter the Irish farmer would find it his interest to direct his best attention.

I was surprised to find the show of swine so limited as to number, especially in a country where the pig has been regarded as an important and indispensable item in the ordinary husbandry. Swine, I am told are diminishing, while cattle of late years have greatly increased. The show in this department was good as to *quality*; there being some excellent animals both of the

large and small breeds. I also felt disappointed in the small amount of Flax and Poultry on exhibition, and there was no display of farm cereals, except a number of small specimens belonging to the ordinary collection of a seedsman, exhibited chiefly with a view to business purposes.

The Show of Implements was far more extensive than on any previous occasion, constituting a department that was both attractive and instructive in no ordinary degree. Several of the larger English makers were represented, but no inconsiderable amount was from Irish firms, clearly indicating the progress which has been made of late years in the agricultural mechanics of that country. Fowler's steam plough was put into operation on a farm at Blarney, and did its work admirably. Other implements and machines, such as ploughs, scarifiers, reapers and mowers were also tested, affording the spectators much interest and instruction.

The above will give the reader some general idea of this great national gathering. On the first day the admission being half a crown, the yard was not inconveniently crowded, and upon no similar occasion did I ever see so large a number of elegantly dressed and handsome women, who appeared to take great interest in the various departments of the exhibition. The Irish ladies have always been distinguished for natural grace and beauty, and those of Cork are considered to excel in these attractive qualities. The Grand Banquet of the Society was attended by some four or five hundred people, including a large portion of the Irish aristocracy. The Lord Lieutenant, who is very popular in the country, attended the dinner and delivered a very suitable and eloquent speech. The whole proceedings of the evening, and all I could otherwise learn, were full of faith and hope in the future welfare and prosperity of Ireland.

G. B.

Belfast, July 31st.

P. S.—I have now been through Ireland from south to north, and my impression of the state and capabilities of the country is decidedly favourable. The facilities afforded by the Encumbered Estates Act for tranferring landed property have been attended by the happiest results; and it is satisfactory to know that by far the greater part of these estates have been purchased by Irish capital. A general glance at the tenantry and their farms is sufficient to ascertain whether the landowner is needy or otherwise. In many places the dirty mud hovels of the peasantry are rapidly giving way to neat if not elegant cottages, so that this just reproach of Ireland and her landed proprietors is in a fair way of being wiped away. A higher standard of domestic comfort is being raised, the demand for labor is now constant, and wages have considerably advanced, and are still advancing. In no part of the United Kingdom is the education of the people better, if so well attended to, and the national system, based on the non-denominational principle, is daily acquiring strength both in the ordinary schools and the colleges. I have been over the latter both in Cork and Belfast, with the principal Agricultural institutions connected with the National Board of Education; of which more hereafter. The weather, though cool, is more propitious, and the crops are promising, but late. Every day I meet with parties interested in Canada, and the Prince of Wales visit is a matter of common talk and congratulation. It cannot fail to do us much good. I shall leave the Emerald Isle with pleasing impressions, and cannot readily forget the hospitality and generous nature of her people. Tomorrow I cross the channel for Scotland to attend the Highland Society's Show at Dumfries.

G. B.

The Breeding of Sheep.

We take the following extracts from an excellent paper lately read before the London or Central Farmers' Club, England, on the merits of Pure-bred and Cross-bred Sheep," by Mr. Charles Howard. We copy from the "Irish Farmer's Gazette":—

"The sheep of this country are divided into two classes, short-woolled and long-woolled; the established breeds under the former are South or Sussex Down, Hampshire or West Country Down; under the latter are Leicester, Cotswold, and Lincoln; all possessed of some most excellent qualities, or they would not have made their way and all but exterminated the various local breeds that were once to be found in this country; and perhaps it will be well briefly to glance at the history of those breeds.

The South or Sussex Downs are most probably descended from small gray and dark-faced sheep, which were found upon the hilly and mountainous districts throughout England.

The late Mr. John Ellman found a very inferior and ill-formed description of sheep upon

the downs of Sussex, but being possessed, like Bakewell, of an intimate knowledge of the physiology of breeding, by a judicious selection of his animals (but what selection it was the world is not acquainted with), he produced an animal with as many good points as its prototype had bad; but their greatest improvement devolved upon a gentleman, a worthy member of this club. I allude to Mr. Jonas Webb, who, regardless of expense, has moulded the sheep to his own views, and made it as regards its shape almost perfect. The peculiar merits of this breed consist in its superior quality of mutton and wool, and I gather from a letter of Mr. Jonas Webb's, in reply to a statement of Mr. Druce's in vol. xiv. of the Royal Agricultural Society's Journal, their average weight at from 13 to 15 months old is about 9 stone, (8 lbs. to the stone) and the weight of the wool of the entire flock about 6lbs. The ewes are capital breeders, generally producing one-third twins, and are excellent mothers. This breed is, doubtless, best adapted for elevated situations and bare pasturage, where activity is necessary for getting the stomach filled, and where folding is pursued, their activity being in their favour, they are a highly desirable class of sheep; from their gay and beautiful appearance they find strong supporters amongst our nobility and amateur farmers, and are considered by them the *elite* of our breeds.

The Hampshire or West County Down is a very important branch of the Down family.

The Sussex Down is the favourite in the eastern counties, and this breed in the western and south-western counties. Again, as the Sussex Downs are descendants of the sheep which formerly occupied those hills, the latter are descendants of those white-faced horned sheep that had ranged from a very early period the hills and downs of Wiltshire and Hampshire. Their improvement dates from the commencement of the present century, when recourse was had to the Southdown; from successive crosses this very valuable class of sheep was established, and I think it will be generally admitted that a flock of Hampshire Downs now presents as great a uniformity in wool, colour, and general appearance as their smaller but handsomer cousins, the Southdowns. They have lately rapidly risen in public estimation, and find considerable favour in the London markets; but it is said by some, (with what truth I know not) that, like the Londoners, who are fond of them, they have rather large appetites. A gentleman who stands high as a successful exhibitor of this class of sheep at our national shows, in reply to my inquiries, states that "they are the best description of sheep for Wiltshire, Berkshire, and Hampshire; in fact, the large sheep fairs, such as Overton, Alresford, Wilton, Ilsley, and Weyhill are supplied with very little stock of any other sort; they are very hardy and of good constitutions, good wool bearers (the average weight of a well kept flock is from 6 to 7 lbs. each fleece), of early maturity, and have plenty of lean as well as fat meat; they will graze to almost any weight you may think proper to make them." The same gentleman also states "that they have been very much improved the last few years by a slight cross with the Southdown." Another gentleman, not a breeder of Hampshires, but who has had considerable experience in the feeding of them, states that they are a good. useful sheep; the better bred ones will bear comparison with other breeds, but there are some not to be desired; those that are too large are very slow in feeding, and when fat are of second quality," and in his opinion "it is very easy to get a Hampshire too big." The ewes are good breeders and sucklers, and combined with the excellent management they receive in these counties, some most extraordinary lambs are raised, which at barely eight months old command enormous prices at their autumn fairs. Their draft ewes also find a ready sale, and are distributed throughout many parts of England, chiefly with a view to cross with the Cotswold or other long-woolled rams; but the former is more commonly used, and I have seen some very wonderful lambs the result of this cross. So much for the short-woolled sheep.

There is no reliable information as to the course pursued in establishing the Leicester sheep.

Bakewell died, and his secret was buried with him; but there is very little doubt they are the result of a cross of the various long-woolled breeds in his own immediate locality, and which he succeeded in turning to good account by the production of this valuable breed of sheep; for it cannot be denied that to this animal all other long-woolled sheep, and perhaps some others, are indebted for their improved shape and great disposition to fatten. These sheep have been so long before the public, and their qualities are so well known, that I shall not occupy your time with any lengthened remarks upon them; their chief characteristics are aptitude to fatten, with a comparatively small consumption of food, and early maturity; they cut a good fleece of wool, upon an average of 7 lbs. each, and weigh at 14 or 15 months old from 9 to 10 stones each. Some friends of mine in our own county, who have been very successful exhibitors at the Smithfield Club show in this class, regret that they cannot be considered good breeders or sucklers—it is a rare thing to have more lambs than there are ewes put to the ram; they also inform me that they find some difficulty in satisfactorily disposing of them when fat, as the public taste shows a decided preference for a black leg and a dark face.

The Cotswold or Gloucester sheep is one of the oldest of our breeds.

Mention is made of them in the early history of this country, and Miss Strickland says in her "Lives of the Queens of England," vol. i., page 449, "that there is little more than tradition to support the assertion that to Eleanora of Castile," Queen of Henry II., "England owes the

introduction of the breed of sheep for which Cotswold has been so famous A few of these animals were introduced by the care of the queen from Spain, and they had increased to that degree in about half a century, that their wool became the staple riches of England." If this be true, they doubtless became very much improved upon their introduction to this country, or it is recorded that some 300 years after, Edward IV. gave permission for some to be sent back to Spain. They were originally very coarse animals, with a thick heavy fleece, and well adapted for the bleak, unenclosed Cotswold hills; but since the enclosure of the land and its better cultivation, a great improvement in this class of sheep has taken place; there is little doubt this was effected by the use of the Leicester, which, without diminishing their size, improved their quality, and gave them a greater aptitude to fatten. Among the men to whom this country is indebted for improving this breed were Messrs Charles Large, William Garne, W. Hewer, and C. Barton. To Mr. Robert Garne, the well-known breeder, I am indebted for much of my information. Among other observations, he states, "They are capable of enduring great hardships, succeed well in exposed situations, and on nearly every kind of soil adapted for sheep farming, producing a great amount of mutton and wool at an early age, and it is no unusual thing to see in the best flocks sheep of 16 stone when only 12 months old." In confirmation of this, I saw, when at the Oxford cattle market the second week in March last a pen of shorn tegs of Mr. Gillet's of Astrop weighing quite 16 stones. Mr. Garne also states that "the weight they may be made as old sheep is enormous. He had one at the last Christmas cattle market weighing 43 stones or 86 lbs. per quarter, for which he obtained £8 10s. The average weight of an ordinary flock when fit for the butcher at 14 or 15 months old is from 12 to 13 stones, and the weight of wool of the whole flock would approach to 8 lbs. each. The Cotswolds cut a grand figure and generally form a very attractive portion of the Royal Agricultural Shows; there are between 3000 and 4000 rams annually disposed of, and a good export trade is now carried on with Australia, as well as to the continent. The great demand for them is for crossing, and perhaps it may be considered one of our best sheep for this purpose.

The heavy woolled and large framed Lincoln sheep, like the Cotswold, have been improved by an admixture of Leicester blood.

Mr. J. Clarke, who is well known to many of you, thus speaks of them: "The present improved Lincoln sheep partake largely of the peculiarities of both Cotswold and Leicester, having the expansion of frame and nobility of appearance of the one, with the quality of flesh, compactness of form, beauty of countenance, and propensity to fatten of the other; but they far exceed either in the weight of their fleece. Under good management their wool is of a quality which rarely fails of obtaining a price equal to that of the lighter long wools, and there is, therefore, no breed perhaps that can equal this in rapidity of growth and propensity to fatten under a skin so weighty and so valuable." There are instances of a most remarkable weight to which these sheep have attained. In 1826, Mr. Dawson, of Withcall, killed a three-shear sheep, weighing 96½ lbs. per quarter; a two-shear, weighing 91 lbs. per quarter; and a shearling, 7 lbs. per quarter. Mr. Robert Smith, in his report of Lincoln sheep at the Warwick show, states that "he has known 14 months' old lamb-hoggs slaughtered at Lincoln April fair, 30 together, averaging 35 lbs. per quarter, and 100 together clipping 14 lbs. of washed wool each." It is not the common practice for breeders of Lincolns to have them fit for the butcher at 14 or 15 months old, but they are generally kept until they are 22 to 28 months old, when their weight will be from 30 to 50 lbs. per quarter, and cut a second fleece, weighing from 10 to 14 lbs. The weight of wool of an entire flock, under fair average management, is about 8½ lbs. each; in some cases, especially on good layer, this weight no doubt is exceeded. Mr. John Clarke's Lincoln prize ram clipped 51¾ lbs. of wool in three years, an average of 17¼ lbs. each year, while a neighbor of his in 1859 clipped 327 hogget fleeces, which weighed altogether 130 tods, an average of over 11 lbs. per fleece. The Lincoln breeders consider the mutton of admirable quality, having less fat, and a greater portion of fine grained lean flesh than the Leicester. The ewes are good breeders, but, like the Cotswolds and Leicesters, are not good sucklers. Mr. Clarke concludes his letter by stating that "it is certain that neither Cotswold nor Leicester sheep, in cases where they have been tried (I suppose in that district), have equalled the Lincolns in the value of wool and mutton together produced per acre, and no other breed can furnish such big and heavy skinned lamb hoggs as those which are the grazier's attraction at Lincoln, Caistor, and Boston spring fairs. So much for the long-woolled breeds.

The progress crosses have made is this country is proved by their competition at the Smithfield Club.

Through the kindness of Mr. Brandreth Gibbs, I am enabled to give the return of the entries. Prizes were first established for cross-breeds in 1843, now 17 years ago. During the first nine years, the average number of pens was only 8½, but during the last eight years they have averaged within a fraction of 17; while the Leicesters during the first nine years averaged 19 pens, they have during the last eight only reached to 17. I do not intend to go into the question of food; for it must be admitted that the long-woolled breeds will, doubtless, put on the greatest amount of fat in proportion to the food consumed than any other; but this is not all the farmer requires. When he has produced his

mutton he wants a market for it; crosses find a more ready sale and a much better price, which more than make up for the increased consumption of food. There is a very great difference of opinion upon the subject of crossing, many, very many, still contending that it is not desirable to go beyond the first cross; and the most successful and common mode pursued is to use a long-woolled ram upon South or Hampshire Down or other dark-faced ewes. This course has been found to answer better than a short-woolled ram upon long-woolled ewes; for the produce generally partakes of the size of the male, and this, having an eye to the butcher, is a great desideratum in crossing. The great objection urged by many against this system is, that as all the produce is sold off annually the breeder is driven into the market every year for ewes, which are mostly the drafts of other people's flocks, thereby running the risk of introducing all manner of diseases on to his farm; besides, there is a want of uniformity in the lambs, some taking after the sire and others after the dam; moreover, having to purchase ewes every year, the demand is increased and the supply is diminished. This cannot be desirable, for with a fast increasing and flourishing population, bringing with it a growing demand for meat, the breeding of sheep cannot be too extensively carried on. The objections I have stated to the mode of crossing I have described, have been felt by many, and successful efforts have been made by the men of Shropshire, Oxfordshire, and other districts, to produce sheep that unite the well-known and acknowledged good qualities of the Down with the larger framed and heavier fleeced long wools. What has been done can be done again. If it was possible for Mr. Bakewell, by a judicious selection from the various long wools, to produce the new Leicester; for the Hampshire men, by the use of the Sussex Down, to change the characteristics of their native horned breed; who shall say it is not possible at the present day, with our enlarged knowledge and increased facilities, to produce results equal to those who have gone before us? The Oxfordshire and Shropshire men in their attempt to establish these newer breeds are backed up in their principles of breeding by a very high authority, a gentleman who is a member of this club. I allude to Mr. Spooner, who has written a most excellent paper upon the cross-breeding of sheep in the last Journal of the Royal Agricultural Society of England, and I will take this opportunity of saying that for practical papers and good downright farmers' reading no previous journal has equalled it. Mr. Morton, I know, did his best to make it so. I trust now that it has fallen into other hands it may be conducted in like manner. Mr. Spooner says in one of his conclusions bearing upon this point, "Although the benefits are most evident in the first cross, after which, from pairing the cross-bred animals, the defects of one breed or the other, or the incongruities of both, are perpetually breaking out, yet unless the characteristics and conformation of the two breeds are altogether averse to each other, nature opposes no barrier to their successful admixture, so that in the course of time, by the aid of selection and careful breeding, it is practicable to establish a new breed altogether. This, in fact, has been the history of our principal breeds." Mr. Spooner goes on to show that the Leicester was produced from crossing in the first instance, the Cotswold and Lincoln have been improved by the Leicester, and the Hampshire and Wiltshire have also been crossed and improved by the Southdown; and as regards the latter, there is a doubt in some minds whether their improved chines and backs were not brought about by some such means. From all this it would appear the word "pure" is out of place when speaking of any breed, and therefore I prefer to use the term happily chosen by Mr. Robert Smith, in his reports of the Royal Agricultural shows at Chester and Warwick, viz., the "established" breeds.

Horse Talk to Tyros.

When horses are grazing in a state of nature, or turned out for a temporary run, they, doubtless, swallow a deal of earth. I have seen those that are regularly kept in stables, and fed only on oats and hay, if allowed, when out, seize any opportunity to eat earth. I have also seen horses when first unbridled in the stable, after a journey, lick every particle of it from their feet, or if they can get at a whitewashed wall they will never rest until every bit of lime is licked off it. All horses should have a lump of rock-salt and a piece of chalk kept regularly in their mangers; and my opinion is, that if they are fed upon food best suited to their constitution, and moderately, but not over worked, they will require but little, if any, medicine whatever. Most of their disorders are the results of close confinement in badly drained and badly ventilated stables, and are to be prevented or remedied only by proper stable management, and plenty of gentle work or exercise in the open air, for air and exercise is as essential for preserving the health of horses as human beings. Their infirmities and unsoundness (when not transmitted by breeding from unsound progenitors) are almost invariably caused by too much work, and their internal diseases by over feeding and want of exercise, or pure air in the stable. But I would not, on this account, proceed to drug and poison them internally with balls and patent medicines, of which there are now-a-days so many vendors, who know nothing whatever about the anatomy or nature of the horse; neither would I subject their skin and sinews to operations which, in some cases, is as cruel as it is ignorant and useless. But if curbs, splints, spavins, and the like, make their appearance in embryo (caused by over work while too young),

I would trust only to a loose place and perfect rest. And in the case of wounds, nature wholly unassisted will often perform cures almost miraculous, if not (as is too often the case with ignorant practitioners of veterinary surgery) obstructed by what is called art. Nothing that I know of is so efficacious in the cure of wounds as to keep them scrupulously clean, and the frequent application of a wash composed of the tincture of myrrh and arnica, with bran mashes as food. I think all horses, particularly those that are touched in the wind—and there are few but what are, more or less, after they have been worked a few years—should have water always within their reach when they are cool. Setting them previous to galloping is the only exception, and this in many cases is often overdone by that conceited class of grooms who are too clever. Race-horses or hunters are the best judges, however, of the quantity of chilled water they should drink after their exertion. Their grooms are seldom competent to judge of how far they should be limited in the case of their own potations, and their judgment is seldom to be relied upon as to the quantity of water the horses under their charge should take; for those of my readers who employ grooms know to their cost that their want of judgment in the important matter of watering their horses is the frequent source of fever, inflammation, and colic. It is a most barbarous mistake to stint brokenwinded horses of water; the object should be to prevent them distending themselves by immoderate draughts, and this is best accomplished by giving them frequent opportunities of making moderate draughts, while at work, and keeping it constantly before them in the stable. This would also prevent many cases of broken wind. "Water your horse, and feed him often," I say, if you would preserve his wind, and keep him in condition; let him have plenty of water when cool, but not over-gorge him with food at one time, for his stomach is small and soon empty, especially when at violent exercise; for then the digestion is quicker. But if you let him remain long without food he is apt to bolt it, in the hurry to satisfy the cravings of an empty stomach, and in that case the food is not properly masticated, and the horse rarely looks fresh. Over-gorging the stomach also causes the food to distend the stomach, and ferment. I have known it cause stomach-staggers, or inflammation of the stomach, and end in death. Soft water is much better than hard for horses; but where that cannot be obtained plenty of clay and marl should be kept in the tub or cistern, where a supply of water should always be in store. The horse should never be allowed to drink water fresh from the well or pump. When bran-mashes are given, a handful of salt should be mixed up with it—a little clover or tares is a fine alterative, and the best at this season of the year, because the most natural for horses that are kept on hard, dry food, but too many should not be given at one time, or when the horse is heated, or ravenously hungry, lest they produce colic.

If it is required to fatten horses for sale (which, I may say, hides a multitude of faults in make and shape), I have found nothing so efficacious as boiled barley and oil-cake, with good grooming, gentle exercise, or a roomy loose box, where they can exercise themselves in a quiet stable with no other horses near, or noises outside, to prevent them lying down as much as possible on a deep bed of clean straw. Liver of antimony, to the extent of three or four drachms, is given by some good judges of conditioning horses in their feed about four times a week. They say it purifies the blood, and materially assists the process of fattening, not only horses, but many other animals; but care should be taken that it is pure, and not adulterated with black lead. I need not, however, remark that horses forced into condition by the above means very soon fall off when they come to regular work, and the usual fare of oats and hay. Nor should I have thought it worth while to recommend this system of temporarily overloading horses with superfluous flesh, were it not the fashion for the majority of horse buyers to reject a horse merely because he does not look sleek and fat. A good judge will never reject a sound, young, and well-made animal because he is in bad condition, but an experienced buyer likes to see bone and muscle covered with useless blubber, which is too often put on to hide faults, and which disappears after a few sweats like snow in sunshine.—Ballinasloe, *in the Land.*

Why are not Race-Horses Bred with a combination of Useful Qualities?

Yes. Why do we not breed our race-horses with more bone and muscle, deeper bodies, and shorter legs, so that they may render the country, as well as the turf, some little service, as some compensation for the enormous sums we grant them—nearly three millions yearly, in public purses? What do we get in return for the public bounties granted by our government? Not that for which the money was first given—viz., the improvement of our breed of horses; but, on the contrary, we are every year deteriorating the qualities of our saddle horses and troopers, by the reckless mixture of breed with our racers, under the idea that we are infusing blood and staying qualities into their veins. Blood is all very well when allied to a compact, useful form, able to carry *men* a reasonable distance; but when it is produced by "in-and-in breeding," from shallow forms on long, tottering legs, it ceases to be worth the name of "blood," in the common acceptation of the term. Those qualities in our race-horses which are decreasing every year more and more are the most useful and natural ones—namely, constitutional vigour, freedom from hereditary dis-

ease, strength of bone, largeness of muscle, and great endurance under severe exertion. These are the qualities which we require for use; for very few of us would buy a horse for his single quality of speed—indeed, none but turfmen would care to own such an one. The general public do not require such horses, because they have no use for them in the daily routine of life. Those who like to travel fast may gratify their wish any time in an express train. But even if it were our wish to travel fast on horseback, it would be unsafe to do so on the public roads; and where would we find a race-horse to carry a fourteen-stone farmer at the pace, and come into the inn yard as fresh as the smart little cob produced from a judicious cross?

There are thousands of race-horses bred, and reared to the age of two years, which, after trial, are found worthless for the purpose they were bred for, and these are expelled from the racing studs in disgrace, and they are sold for little or nothing; some of them are given away, and are much too dear even at that price. Thus, our country, once famed for the best breed of saddle horses in the world, is becoming overrun with a lot of worthless, weedy, refuse racing-stock, which, by many inexperienced farmers and breeders, are gradually being crossed with, and thus deteriorating the breed of, our short-legged, deep-bodied, wide-hipped, strong-loined, saddle-horses, the lineage of which, in a few instances, we can still trace, by their compact forms, to the breed of race-horses encouraged by our fore-fathers, who bred horses for *useful* purposes, to carry *men* long distances, and not the spindle-shanked velocipedes bred by our turfmen of the present day, that break down after running a few furlongs with a baby on their backs. Of what earthly use, I would again ask, are the race-horses of the present day, when they are tried and found wanting in speed for the purpose for which they were bred? Besides the great change that has taken place in the forms of our race-horses, they are become strongly disposed to lameness and disease, and before even starting for their *first* race many of the best are lame; others are rendered so for life by running a short race like the Derby; nearly *all* are more or less infirm from their birth and would knuckle in their pastern joints if they were to carry an average sized man a reasonable distance on a turnpike road. Our race-horses have been much injured under the existing practice on the turf of breeding in-and-in, as it is only from a small portion of the vast numbers of race-horses that the breed is kept up. Every one breeding for the turf sends his mares only to the stallions whose stock has most speed. If the old style of racing had been kept up, viz., four-mile distances, under a weight of ten to thirteen stone, this evil would have been avoided; because, when endurance and constitutional vigour become reduced in any stud, the owner of it would naturally have sent his mares to a stallion which was yet in possession of those qualities.

It is curious to see the helplessness of our thorough-bred foals, which usually cannot move about for some days after being foaled. On first observing this, I suggested to the owner of one that it would be better to destroy the poor little miserable devil; but I soon found it was the pure effect of constitutional weakness in the parent, common to all thorough-bred foals. Notwithstanding the public bounties to our turf for the encouragement of a fine and serviceable breed of saddle horses, suitable either for the hunting field or for the cavalry, we are every year more and more deteriorating the race, and thus obliged to yield to the growing weakness, and give them less to do, with shorter distances to run, and lighter weights to carry. The Jockey Club are content to see our race horses losing every quality but speed; for that, and that alone, is the quality required by the racing world under the existing system of running. To the Jockey Club, or to the gentlemen who breed our race-horses, it matters not what is the character of their horses, as a whole: each individual desires only to have the best of that whole. But I do not see what it can matter to these gentlemen, or the racing world, what is the average speed of their horses. Their sole object is to win money; but if they would insist on the performance of the old tasks—viz., longer distances, with heavier weights, our turf would soon abound with horses displaying a fine union of constitutional vigour, physical strength, and endurance, with sufficient speed for every *useful* and *pleasurable* purpose, while gentlemen connected with the turf would win and lose their money with as much facility as they do at present.—BALLINASLOE, *in London Review*.

Prizes for Horse-Shoeing.

At the recent Dorsetshire (England) Agricultural Show, prizes were offered for *Horse-Shoeing*—a feature entirely new to us, although it is said to have been tried by this Society once before. The idea is a good one, to say the least, and we suggest it to the managers of similar associations in this country. A workshop, on this occasion, was loaned for the purpose in the immediate vicinity of the show ground:

Five forges with five horses were placed at the disposal of the stewards, and in order that too much time should not be taken up, the contest was limited to making shoe nails, fitting and preparing the foot, and putting on a single shoe on the fore-foot. There were 10 competitors, so that only five could work at one time. The signal was given for starting, and in the course of 22 minutes for the shortest and 32 for the longest, the five shoes with the requisite number of nails were reported to be made, after which the signal was given again for nailing on, which was accomplished in from four and a half to seven minutes. No filing of shoes was allowed, as it was held that this, though very proper in

ordinary usage, was yet no proof of skill, and might serve to hide defects. It is evident that the amount of excellence was not confined to one point only, but to several, for instance—

1. The time of making.
2. The levelness of the shoe.
3. The situation of nail holes and the fullering.
4. The proper and even seating of the shoe.
5. The preparation of the foot, such as the removal of ragged parts, which only harbored filth, without cutting away the bars or too much of the frog and sole.
6. The fitting of the shoe so that the wall or crust might have a firm and even bearing, the shoe not projecting at the sides or too much so at the heels. The shoes to rest very slightly on the heels, and the sole and seat of corns particularly being secured from pressure.
7. The nailing on so that each nail should have a firm holding the first time it is driven, so that the crust may not be injured by drawing the nails and paring the horn uselessly. The nails not to be too numerous nor too near together, nor the heads to be so large as to project much beyond the shoe, and above all to be placed at some distance from the heels, particularly for the inside heel, so that there may be no impediment to the foot's expansion.
8. The time taken by each competitor to perform these various operations in a proper manner.

It will be seen by reference to these various points that the judgement was by no means trivial, as it had to take all these points into consideration. One of the best workmen failed to get a prize in consequence of too great haste both in making and putting on; whilst another skilful maker of a shoe wanted experience in fitting it to the foot and putting on.

The prizes were respectively 3 guineas, 2 guineas, and 1 guinea—time occupied by the winners:

	Making & fitting	Putting on.
First prize.....	26 minutes.	7 minutes.
Second "	32 do	4½ do.
Third "	25 do	5 do.
Highly commended	30 do.	7 do.

The Cattle Murrain.

The citizens of Massachusetts and the adjoining States are sorely troubled by the spreading of that fearful infection among the cattle known as pleuro-pneumonia. To such an extent has the malady progressed that an extra session of the Massachusetts Legislature has been called for the purpose of devising measures to circumscribe the evil. The session will commence on Wednesday, May 30, and money appropriations will be called for, so that prompt and decisive action may be taken. Reference is made to the endeavors made by the English Government, now more than a century since, when a similar disease presented itself, and which were effective in arresting the course and shortening the stay of the malady. It appears that in 1744 a farmer residing at Poplar, near London, imported two calves from Holland which were affected with the disease. Starting from this point, slowly at first, but more rapidly as more means for its propagation were offered, it spread over the length and breadth of the land, destroying hundreds of thousands of cattle, and continuing its devastating effect with almost unmitigated severity, down to 1754-5. Notwithstanding the deep and painful interest which this disease excited, and the efforts made by the government to stay its ravages, it was ascertained by one of the Commissioners appointed to investigate the matter, that in Nottinghamshire alone 40,000 head of cattle perished in six months, and in Cheshire upwards of 30,000 in the same space of time. By a special act of Parliament orders were given:

"1st. For the killing of all the infected animals, and burying them entire with the skins on, 'slashed from head to tail,' that they might not be used for the purposes of the manufacturer. 2nd. For the burning of all the hay and straw used about the animals. 3rd. For the cleaning and fumigating of the sheds, etc., and for no sound cattle to be put into them for two months after the removal of the diseased. 4th. For no recovered animal to be allowed to go near others for a month after its convalescence. 5th. For no diseased cattle to be driven to fairs or markets, nor for the flesh to be used for dogs, etc. 6th. For no healthy cattle to be removed from a farm where the disease had prevailed, in less than a month after its disappearance And lastly, orders were given for the notice of an outbreak to be immediately sent by the farmers to the proper authorities."

In one year, the third of the existence of the disease, £135,000 were paid out of the public treasury as a recompense for the cattle killed according to the prescribed orders. During the year, 80,000 head of cattle were killed because more or less affected, and nearly double that number died of the disease. There have been cases, we learn, of a similar kind in Canada, though not to such an extent as yet to attract very general attention. But, in order that this country might be spared the terrible infliction, it would be well if all cattle which may be seized, should be either killed at once or so kept entirely to themselves as to prevent the contagion from spreading. Indeed, it might be well if the Canadian Government were to take some action in the matter, and by circulating information respecting the disorder, and causing a supervision to be exercised over all cattle sought to be imported, arrest the spread of the disease through Canada. Just at this time, when the country is recovering from the recent depression, and when everything promises an abundant harvest, nothing could be more calamitous than the spreading of a disease which would destroy

so large a portion of the living wealth of the country. Meanwhile, the utmost caution should be exercised by the farmers to prevent the malady from obtaining a headway, as, should it once get a firm footing, the plague might commit similar ravages with us as it did during the long period in England to which we have referred. One plan, that of inoculation, has been recommended as a remedy. It is stated to have been tried in Belgium in 1852, and that of 600 head inoculated in the space of three months, at the period of its greatest intensity in that province, not one of them contracted the disease.—*London Free Press*—May.

Landscape Gardening.

The usual accompaniments of refinement and civilization are displays of the fine arts, such as painting, statuary, elegant cabinet works and architectural decorations. These are all very well in their place, but there is another art which deserves a much higher position than is generally assigned to it by those who form their ideas of refinement by the display made in our cities; we mean the art of landscape gardening. The highest style of art consists in cultivating nature in the best manner. No work of art is really beautiful which is not in accordance with natural laws, and no people can become truly refined who do not possess a taste for the beauties of nature. The most gifted and cultivated minds have ever found delight in rural scenery. In the days of Augustus, when the Romans had attained to a state of civilization nearly equal to that enjoyed by us at the present day, landscape gardening held a high position. In the strains of Virgil we can almost fancy that we hear the hum of his bees, the bleating of his flocks and the murmurs of his fountains, as the poet sat at noontide under a shady bower, enjoying the sight of cultivated fields. The great Newton took exquisite delight in his flower garden, which was said to be the neatest in all England. The graceful lawns and beautiful gardens attached to the mansions of the noble and wealthy men of Europe are better evidences of true refinement than the monuments of marble, the galleries of paintings and the gorgeous temples of their cities. These facts are now being appreciated by our people. In the early settlement of our country, the struggle was severe to subdue nature in the rudest form, so as to obtain the fruits of the field for the necessities of life. The beauties of art, as the handmaids of nature in rural cultivation, were then held in abeyance to the rude but pressing demands of necessity. But as a national wealth has accumulated, so has there been a commendable search for enjoyment in the rational and elevated refinements of cultivated nature. The late Mr. Downing, whose name and fame are world-wide, said, wrote, and did much to spread abroad a taste for landscape gardening, and he was eminently successful in his labors. Within the past twenty-five years, especially, there has been a vast increase of general and individual wealth, and it affords us gratification to witness a proportionate diffusion of taste for rural beauties. A recent short tour in some of the districts bordering on the Hudson river has impressed us most favorably respecting the growing taste for the sublime and the beautiful in nature, combined with art. Go where we may, we behold grassy lawns, like beds of emeralds, surrounding stately mansions. Silver streams are trained to send forth their sparkling showers from numerous fountains; and the banks of our rivers are becoming as attractive for highly-adorned scenery as those of the Thames and the Rhine. We commend this growing national taste for the beautiful in nature, and exhort our people to indulge in it with persevering enthusiam. The climate and soil of the United States are most favorable for superior landscape gardening. We have lofty mountains, broad lakes, deep and noble rivers, fertile vales and extensive plains and an almost tropical vegetation; and these certainly are natural advantages of the very highest order. American travelers in England used to speak with enthusiasm of the trim hedge-rows, the neat fields, and the high style of gardening displayed on every hand; foreign travelers in America now admit that the national taste for rural beauty is not inferior to that displayed in Europe, and that we are progressing to the attainment of the very highest position for landscape gardening.—*Scientific American.*

Correspondence.

Farming in Illinois.

Editor Agriculturist,—A party of Canadians have just returned from an excursion to which they were invited by the officers of the Illinois Central Railway Co., and also of some of the intersecting lines. All who availed themselves of the opportunity thus afforded them of exploring the novelties of the Far West cannot have failed being impressed with the unlimited kindness and attention extended to them by Mr. Austin, who on the part of the Illinois Central, piloted them through their journeyings in the prairies, and the unbounded hospitality with which they were entertained by the residents of the different localities where they were enabled to make a pause in the rapid progress incident to railway travel.

The main feature of novelty which must present itself to any one visiting these prairie regions is the immense extent of soil of uniform composition. For hundreds of miles the agriculturist sees nothing but the richest decomposed vegetable mould of average depth of eighteen inches, underlaid by a deep substratum of very pure clay. This soil apparently has an unlimited capacity of producing Indian corn, and this

year the seasons having been most favorable to Illinois, as to most other portions of the Northern States and Canadas, nature wears her most smiling aspect. For miles along the railway hundreds of acres are to be seen covered with a most luxuriant growth of corn, some as high as sixteen feet. The variety commonly grown is the *Dent*, or Horse-tooth corn, which I believe throws up but one shoot, while the labor of removing the suckers, as with other varieties, is done away with, and the general produce is but two ears to each stalk. The careless system of cultivation may be imagined from the fact that 40 acres is considered a proper amount for one man to cultivate in a season. Under ordinary good cultivation the average yield is stated to be 40 bushels per acre, and this year it is set at 50, though some pretend to export 80 and others even 100 bushels per acre of shelled corn. This year the price will probably be from 15 to 20 cents per bushel. The grain is always bought in the ear, and 72 lbs. of corn in the ear is reckoned equal to 56 lbs. of shelled grain. It is to the production of corn alone that the whole of central Illinois seems particularly adapted, the absolute deficiency of lime in the soil rendering it unfit for the production of wheat; and in Northern Illinois the want of snow as a protection from the frost, and the prevalence of keen biting winds which sweep unchecked across the country, render the cultivation of any but spring wheat very precarious. In Northern Illinois lime is most abundant, but further south the price of $1 per barrel will for a long time be a bar to its general use for agricultural purposes. This deficiency in the soil itself, and the general want of drainage are the great impediments in the way of farmers to a certain adequate return for his labor and will afford an easy explanation of the comparative failure of the crops in Illinois for the past three years. A machine similar to the English mole plough has been worked in some places, and will probably come into use in many more as a cheap means of temporary drainage; but in a country where the general level of the land is so complete a more careful system will be necessary to ensure thorough drainage, as it seems impossible to regulate the depth of the drain in passing over any inequalities or undulations of surface.

Without attention to drainage, farming—especially in Illinois—must be unreliable as a profitable pursuit. The general difficulty of getting the water away must prevent an early seed time, and the succession of a season of drought will entail a failure.

Very good water can be reached in many places by digging from 30 to 60 feet, but frequently boring has been resorted to for a depth of 150 feet. Great inconvenience must be felt for want of water for the large herds of cattle pasturing on the prairies, as there are few or no rivers or creeks crossing the country, and the sloughs or water courses draw their supplies only from surface water, and therefore fail as the season advances.

The price of land in the unbroken prairie varies from $5 to $20 per annum. The average value of a farm in at all an eligible situation would be fifteen dollars per acre. The contract price of the rather poor fence, usually built of posts and four six inch strips of boards is a dollar a rod, which will come to four dollars per acre for an outside fence, 160 acres in a square. To this will have to be added the expense of a house and any other buildings the settler will consider necessary, which will all have to be paid for in money, as no materials of any kind will be found on the land.

The value of improved land varies from 30 to 50 dollars per acre. It is said that the ordinary expense of cultivating and harvesting the corn is from 8 to 10 cents per bushel; the average yield 40 bushels per acre and price 20 cents per bushel. There are three methods of harvesting: The most slovenly is perhaps not very much practised at present—namely, when the corn is ripe to turn the cattle into it, and a certain number of hogs with them to feed off the corn in the field during the autumn and winter.—Another process, and the most common, is to drive directly through the corn and gather the ears from the stalk and load them at once into a waggon, leaving the stalks to be fed off by the cattle, and the corn is thus sold. The third method is that used in the Eastern States, namely, to cut and shock the crop, and then during the winter corn, stalk and all, are thrown whole to cattle to be fattened, two hogs being turned into the yard with each one. In this manner it is computed that one ox and two hogs will consume and fatten upon half a bushel of corn a day. In this centres the business of Illinois, namely the production of corn, beef and pork; and its capacity for this seems unlimited, so boundless is the territory capable of being cultivated for this purpose. The actual profit of production being of course ruled by the season each year, though we doubt not as population increases and capital flows in, more careful cultivation and the all indispensable drainage will eventually ensure a greater certainty of productiveness. As to the salubrity of the climate, there was little opportunity of forming an opinion in so short a period as that occupied by the excursion. Those however whom the travellers met seemed to enjoy the best of health. It was said that as the country gradually became cultivated the malaria disappeared in the open prairie, but that there was more sickness in the neighborhood of the few rivers of the country, and the wooded parts adjoining.

These observations are made by a Canadian who fully appreciates the richness of the soil of Illinois; but it will not be surprising that he should compare the two countries in a manner favourable to his own. One of the most important points is that there are immense quantities of excellent well-cleared land in Canada equal to the best wheat producing lands of Northern Illinois, which can be purchased for less than

the amount above mentioned, as the price of improved land in that State. The want of timber and all building material, the absence of snow in winter and the scarcity of water in summer, the scattered population, the distance from market and the consequently low prices of produce so far west, must in the opinion of a Canadian turn the beam in favor of his own well-wooded and more eastern domicile.

HUMBERFORD, August 12, 1860.

Pleuro-Pneumonia.

EDITOR AGRICULTURIST.—Observing that you take an interest in publishing anything that will enlighten your readers on the Cattle Disease, which made its appearance in Massachusetts last spring, I have concluded to place an article at your disposal, which you are at liberty to publish if you think it worth while. There seems to be a diversity of opinion as to whether Pleuro-Pneumonia is contagious. Judging from the reports that have appeared in various public journals of late, there could scarcely be a doubt as to its epidemic character. The symptoms attending the disease—chills or shivering, followed by feverish heat, shortness of breath, and expectoration—give it more the appearance of Typhoid Pneumonia, than of Pleuro-Pneumonia; and the post mortem appearances—suppuration, ulceration, effusion, hepatization, gangrene, tubercles, &c.,—are clearly indicative that it is Typhoid Pneumonia.

The disease is simply a determination of blood to the lungs. The pleura, or inner membrane of the cavity of the lungs, would naturally become more or less inflamed, which is, probably the cause of the term pleuro-pneumonia having been applied to it. Those that have seen animals that were attacked with it, say, that for several days preceding the attack, the animal presents every symptom of fever; and in order to ascertain whether the above-named disease is contagious or not, it is necessary to find out the cause of fevers. They are produced by poisons, unhealthy food, a superabundance of healthy food, with improper exercise, impure water, vitiated air, uncleanliness and atmospheric vicissitudes. Local contagions may also be classed among the producing causes of fevers, although, as far as my observation and experience have extended, I do not consider that, where the predisposing causes mentioned above are strictly guarded against, there is any danger of either fevers or pneumonia being propagated by contact. Pneumonia in horses has been a common complaint in this neighbourhood for many years, although it was never considered contagious. I will mention a case in point. In June, 1856, I took one of four horses, and started on a journey of 40 miles. When I had proceeded about half that distance, I halted, to refresh myself and animal; after feeding my horse, I went to dinner, and on returning found him exhibiting symptoms of pneumonia. I remained with him, and employed the services of two Farriers, and notwithstanding we did all that they considered advisable, on the eighth day his sufferings terminated in death. I returned home the next day, and three days after two others were attacked with the same disease. These were doctored as usual, and, after losing much of their flesh, recovered in about three weeks. The remaining one was equal in condition to the others before they were attacked: his feed was reduced, and a little attention was given that he had proper exercise, and he was not attacked. As there were no other horses in the neighbourhood attacked with the disease I instituted a thorough investigation as to the cause of ours being attacked, and found that after breaking up our summer fallow, the hands that had the care of the teams had continued to feed them the same as when they were at work, while at the same time they had been standing most of the time in the stable. I may here observe that for two years previously I had given my own attention to the care of the teams, and when they were not at work, gave them proper exercise, and the result was that there was not a sick horse of our own on the place during the time.

It is much to be regretted that of the many reports that have been given of pleuro-pneumonia among cattle, there is nothing said about the habits to which the animals had been subjected. In many localities, and especially in Massachusetts, where the disease first made its appearance, it is a common practice to keep cows shut up, soiling them, or feeding them on still slop, or the coarser kinds of grain ground and fermented, which without exercise, would very soon vitiate the blood, and thus produce disease. The object that owners of cows have in treating them thus, is to cause them to produce a large quantity of milk; but the evil effects of this pernicious habit were made painfully visible in the celebrated "swill milk exposure" which was so ably conducted by Frank Leslie, in his *Illustrated Journal*, in the spring and early part of the summer of 1858.

In treating this subject, it may not be out of place to investigate the nature of disease. Disease has been defined by an eminent modern author to be *"remedial effort," or an effort of the vital or life principle to expel foreign or dead matter from the system.* In order, then, that animals should be healthy, they should partake of no more food than they can assimilate, which should be of the healthiest kind to prevent contamination of the blood. It is, also, necessary that the animal take enough exercise to carry off all the matter that is produced by the *wear* and *tear* of the system. All the matter which has been used by the system and returned to the blood to be taken away by the depurating organs, the skin, lungs, liver, kidneys and bowels, the office of which organs is to protect the living organism by carrying off all foreign substances.

Now in view of the above facts, pneumonia is the result of *previous violation*, in which the system attempts to bring matters to an issue, by *expelling this foreign matter* or *destroying the organism* in the attempt. Or again: The system becomes loaded with foreign matter, the depurating organs all go to work to expel the enemy and protect the living organism. It is impossible, the objectionable matter is not taken out as the blood passes through the depurating organs, in its circulation; but is carried back to the heart, which sends it to some of the internal organs—probably the lungs—which leaves the surface without its due amount of the circulating fluid, and chills are produced. The enemy is still present, and the heart pumps with renewed vigor, and sends the blood to the surface again, which produces a feverish heat: this is a symptom of fever. Thus, things pass along with no change for the better, when at length the system changes its mode of operating, and sends a large amount of blood to one place (the lungs in pneumonia) that the objectionable matter may there be expelled by *suppuration*, or what is commonly known as *gathering or healing*, leaving the remainder of the system without its due amount of the circulating medium—the life giving principle—the blood, hence the surface becomes cold.

Now the question arises, what shall be done? To which I would answer, EQUALIZE THE CIRCULATION, BUT DO NOT POISON YOUR CATTLE WITH DRUGS.

Allow me to remark here, that it afforded me a great deal of pleasure to observe the article, which appeared in your valuable journal for August, giving a description of, as well as the mode of using, the "Turkish Bath." A portion of the report, which was submitted by the committee appointed to inquire into the "merits of the Turkish Bath," I have seen fully verified, in sick people that were treated in a similar manner. It is as follows: "That the constitution is not impaired by the treatment with the bath as it is by any of the other systems with which we are at present acquainted." The committee adds, "and this fact is particularly illustrated by the rapidity with which, in every case, the milk almost immediately returns on the animals being relieved from the disease." A neighbonr of mine has adopted a plan of treating his sick animals, which he considers very efficient in cases of colic, &c. It is to sponge the body with cold water and envelope it in blankets. This produces a reaction, by opening the pores of the skin, which immediately relieves the internal congestion. This treatment in Pneumonia would be presumptuous, as the lungs are so sensitive by reason of their peculiar organization. The Turkish bath is peculiarly adapted to the treatment of pneumonia, as the object should be to draw the blood away from the lungs gradually, without subjecting the system to any severe shock. This I think might be done by the application of a heavy blanket, wet in quite warm water, followed by a dry one. The first would tend to draw the circulation to the surface, opening the pores of the skin, while the second would retain the caloric, and thus establish a vigorous circulation. This established, let the blankets be taken off and as quickly as may be, a couple of pails of cool water dashed over the animal, to be followed immediately by very thorough friction until nearly dry, when it should be again enveloped in blankets and placed in a comfortably warm place, wkich is well ventilated.

Indeed, there is little use of attempting to treat pneumonia unless there is a good supply of *pure air*, with cleanliness in every respect. Thorough and continued friction of the extremities is of untold benefit in treating pneumonia. Another important point is to keep the animal fasting for some time after the more prominent symptoms disappear, say from one to three days; after which, commence by giving very small quantities of light food, increasing the quantity gradually for some days.

I would sooner trust to the starvation principle along with pure air and cleanliness, than to the most approved method of drug medication. My apology for the length of this article is the unfeigned pleasure which I should enjoy at seeing the ruinous (to the constitution of living beings) drug system superseded by the more natural, and consequently, rational system of Hygienic medication. And the growing interest that is felt in stock raising, with the certainty that it must continue to occupy a prominent position in agricultural science, assures me that the experience as well as the thoughts of any one, however unpretending, may be of service.

Yours, &c, ISAIAH RIDER.

Pleasant Hill, Port Hope, C. W.,
Aug. 16th, 1860.

Queries.

EDITOR AGRICULTURIST,—The following subjects having been brought before the North Gwillimbury and Georgina Farmers' Club for discussion, I have been requested to forward them for insertion in your paper, hoping to have the benefit of your remarks, or the opinion of any of your readers who have had experience in these matters. It is certainly as a medium of promoting discussion that an agricultural paper is of most service to a farmer.

SUBJECTS:

PLASTER USED AS MANURE.—Any simple mode of analysis?

Is it deterioated by age, if kept dry?

Does it prove as beneficial to cereals as to green crops, and to meadows as well as clover?

How does it act when ploughed in, compared with the dressing?

Are its good effects felt on the second crop?

Which is the best kind for manure?

By what agency does plaster act on the crop?

Canada Thistle.—Best mode of destroying.

Fall Wheat.—Any means known to prevent its being winter-killed, by top dressing or otherwise.

Spring Wheat.—Is it better to plough for in the fall or in spring, in clay and in sandy soils?

Thomas Sibbald,
Chairman North Guillimbury and Georgina Farmers' Club.

N. B.—In the *Agriculturist*, August 1st, I notice an article on the artificial formation of a callous, for striking cuttings, I would gladly be informed as the best season for making the experiment in our latitude. J. S.

[Perhaps some of our correspondents will be obliging enough to furnish answers to some of the above queries. In regard to the latter question, we believe the operation is performed in the winter season. It requires a forcing house, with a moist atmosphere, and a bottom heat of about 70 degrees. When the callous is formed, the cuttings are placed in sand, and put away in a cool place till required for setting out.]

The Provincial Exhibition.

Mr. Editor,—If it is not too late, would it not be wise to give prizes on the four best loads of Hay, including the quality and the loading.

Also on the best four loaves of bread made by the families of farmers.

I see there is no prize offered for the Red Globe Mangel Wurzel.

Is that an omission, or are they excluded?

S. King,
Ryckman's Corners, C. W.
August 18, 1860.

[Any article of home production may be entered for exhibition, although not enumerated in the prize list. Loads of hay, however, we should think rather too unwieldy and bulky for the Provincial show ground. Such a prize may perhaps be offered with advantage at a county or township, or village fair. Red Globe Mangels are not mentioned in the prize list; why, we do not know, but they can be exhibited as extras.—Ed.]

Agricultural Intelligence.

The Steam Plow.—The State Agricultural Society of Illinois offers a premium of $1,000 for the best steam engine that can be practically substituted for animal power in plowing and other farm work. This prize is simply for a farm locomotive which may be applied to do general work. It is expected that several of such engines will be entered for competition this year. Much dissatisfaction has been felt, heretofore, with the action of the committee of this society in not awarding the full prizes at the former exhibition of Fawkes' plow. We hope no cause for such blame will be allowed to rest on the Committee on premiums at the next fair.

State and Provincial Fairs for 1860.

Alabama,	Oct. 29 to Nov. 2.
American Institute, at Palace Garden, New York	Sept. 25.
California,	Sept. 19, 20, 21, 22, 24, 26.
Georgia, at Augusta,	Oct. 22, 23, 24, 25, 26, 27.
Illinois, at Jacksonville,	Sept. 10, 11, 12, 13, 14.
Indiana, at Indianapolis,	Oct. 15, 16, 17, 18, 19, 20.
Iowa, at Iowa City.	Oct. 2, 3, 4, 5.
Kentucky, at Bowling Green,	Sept. 18, 19, 20, 21, 22.
Maine,	Sept. 25, 26.
Maryland,	Oct. 30, 31, & Nov. 1, 2.
Michigan, at Detroit,	
Minnesota, at Fort Snelling,	Sept. 27, 28, 29.
Mississippi, at Holly Springs,	Oct. 16, 17, 18, 19.
National Pomological Society at Philadelphia,	Sept. 11, 12, 13, 14.
Nebraska, at Omaha,	Sept. 19, 20, 21.
New-Hampshire, at Manchester,	Oct. 2, 3, 4.
New-Jersey, at Elizabeth,	Sept. 4, 5, 6, 7,
New-York, at Elmira	Oct. 2, 3, 4, 5.
Ohio, at Dayton	Sept. 25, 26, 27, 28.
Oregon,	2nd Tuesday of Oct.
Pennsylvania, at Wyoming,	Sept. 25, 26, 27, 28.
South Carolina, at Columbia,	Nov. 13, 14, 15, 16.
St. Louis, Mechanical and Agricultural Association,	Sept. 24, 25, 26, 27.
Tennessee, at Nashville,	Sept. 10.
United States, at Cincinnati,	Sept. 20, 21, 22, 23, 24, 25, 26, 27, 28.
Upper Canada, at Hamilton,	Sept. 18, 19, 20, 21.

Draining.—The first indispensible requisite to success in enabling the farmer to command his seed time and harvest, with clay land, is *underdraining:* this is the great panacea against winter-kill and wheat midge. The life and lightness of the land, thus prepared, will give the wheat plants such a start in the fall that they will cover their roots during the win-

ter as a protection against frost: the absence of standing water will prevent winter-kill, the early warming up of the soil in the spring, will get the plants forward so they will cover the ground before the heat and drouth of early summer comes on: and lastly, the field is in vigorous head before the midge wakes up, so that the little pest gets only the outside portions, or scarcely none at all. In very favorable seasons, with skillful handling, these lands may and do yield abundant crops, without underdraining, but it is an even chance you lose your labor; while with underdraining and otherwise good handling, the land is good for thirty-five to fifty bushels of wheat per acre, every time.—*Ohio Cultivator.*

Kohl Rabi.—My success in growing heavy crops of this root for some years upon poor soils, and more particularly their goodness this year in contrast to the general failure of Swedes and Turnips from the summer drought, induces me to bring its valuable qualities to more general notice. Many of your readers may be unacquainted with it, and I therefore may mention that it is grown largely in the north of Europe, and found to stand its severe frosts, and being raised in beds in the spring, and transplanted out in May and June like Cabbage plants, it is not liable to the casualties that Turnips are exposed to. It partakes of the form and qualities of both the Swede and the Cabbage, that is to say, it has the leaves of the field Cabbage, with a bulb very similar to the white Swede. It is a native of Germany, very hardy, withstands frost better, and affords more winter cattle-food to the acre, in February and March, than any root that I am acquainted with. I have tested its feeding qualities against the Swede, and am disposed to think for sheep, and more particularly for couples in the spring, it is superior. They certainly prefer it, hares and rabbits pick it out, and are attracted to it from long distances. The bulb grows above ground, and is come-at-able in frost, and when the ground is covered with snow. It is very sweet and juicy, and the leaves are excellent picking for young lambs. There are two sorts, namely, the green and the purple; the former affords the greatest produce per acre, but perhaps the purple is the most nutritious. My practice is to prepare a seed-bed in winter by well dressing and digging in a corner of my earliest piece of tares. The seed is sown the end of February or early in March, thinly in rows 12 inches asunder, the beds are kept perfectly clean by hoeing and hand-weeding; and as the Tares are cleared off in May and June, the ground is deeply ploughed, ridged up, dressed and planted. The plants, at the first putting out, are placed 3 feet apart, the ridges being 28 inches asunder; but as the season advances, and the opportunity for reaching a small size diminishes, the distance between the plants is lessened. The value of this root, I assure your readers, is very considerable in any year, but more particularly after a dry summer, when most other winter food is scarce, or in severe weather when the land is covered with snow, and the Turnips are buried out of reach of sheep. I am very fortunate this year, when Turnips have so generally failed, having on each of my farms a considerable breadth; and I so much approve of it, that I intend never being without it at this season. Lean stock, after such a season as we have just had, always sell low in the autumn, from the prospect of a want of winter keep; while fat stock, in the following spring, sell very high, so that a crop of this description is most profitable in seasons when Turnips fail. Upon a field of 10 acres, broken up from heath last year (part of Bagshot Heath,) I have at this time more winter food to the acre than is commonly grown on good soils in favourable seasons from any other root—this, too, has been raised without the aid of any purchased manure, and on land hitherto supposed of no value, and incapable of returning any produce paying for cultivation. My next attempt there will be Oats or Barley, and I have little doubt of a crop of corn.—Feb. 1848. *Hewitt Davis's Practical Essay.*

Horticultural.

Memoranda for September.

The Kitchen Garden.—There is not a great deal to be done in the vegetable department this month. Celery should be earthed up carefully in dry weather. Prickly spinach for spring use may be sown to advantage. Early potatos kept over for seed should now be dug, and before being put away exposed to the sun for a few days, which will cause them to sprout in spring considerably earlier. Onions should be taken up and well dried before being put away. All seeds as they ripen should be carefully saved and cleaned out. The ground, as usual, must be kept clean, and especially weeds prevented from running to seed.

The Fruit Garden.—The work in the fruit garden and orchard at this season consists principally in gathering in and making use of the fruit, which does not require much advice. All prematurely falling, diseased fruit, however, should be carefully gathered up and burnt or otherwise destroyed. This will aid greatly in checking the increase of insect pests.

The Flower Garden.—In the early part of this month preparation must be made for the housing of green house plants. Previous to this being done, let the room or green house be white washed with lime, which will prove pernicious to insects, and prevent their generating

among the plants. Chrysanthemums should be neatly tied up to small sticks, and watered occasionally with liquid manure, to promote their blossoming in full perfection. Those in pots intended to be protected for late flowering, should be watched and taken in, on the appearance of a frosty night; they may, however, be exposed to the air as much as possible when it is soft and salubrious, as should all other half hardy plants.

The following remarks of Breck in "The Flower Garden" on the cultivation of Plants in the parlour, will be found useful and interesting, especially to our lady readers:

"A choice collection of plants in the sitting room or parlor will add much to the charms of home; but as we often see them, weak, straggling, drawn up, crowded together, and infested with insects, they rather give pain than pleasure.

In this state, the clear sunlight through the window is far preferable to a congregation of coarse earthen pots and saucers, with their sickly occupants. Judging from what we too often see, cultivators in parlors have very erroneous ideas of what is necessary for a perfect development of their plants. In fact, the plants are often killed with too much kindness; too much heat, too much water, want of light and air, and want of water, are the general causes of the sickly state of plants, which have often fallen under our notice; to which may be added, unsuitable compost or mould. Saucers under the pots, if water is suffered to stand in them, are injurious, but necessary for the sake of neatness; never, therefore, suffer the water to stand in them, nor to be poured into them. The water should always be given on the surface, and never water unless the surface is dry, and then in moderate quantities, for most plants. Rain water only should be used, and that of a mild temperature, but not warm. When water is necessary, it should be applied in the morning of a mild sunny day.

Watering with guano water may be resorted to, to stimulate the plants occasionally; but an over-dose will be injurious, if not destructive. A great spoonful or two to a pail of water will be strong enough; this may be used twice a week.

It is useless to expend time upon plants in rooms where the windows face to the north. South, south-east, or south-west exposures are the best; of course a south window is the very best, as it admits the sun all day.

Light is more important than great heat; indeed, plants are frequently ruined, for all ornamental purposes, by keeping the room excessively hot. The hot, dry air of most sitting-rooms of the present day is so injurious to the Camellia, as well as some other plants, that it can hardly be made to flower, as the buds will fall off long before the time of flowering. But I have seen as fine blooms of the Camellia in an old-fashioned sitting-room in the country, as I have in the green-house. The room was so cold at night that the thermometer would fall nearly to freezing, with a plenty of air from the old window casements during the day. A good temperature for the Camellia is a range of 40° by night, to 60° during the day. I do not mean to be understood that this should be the highest range in the sun; but at the back side of the room, in the shade. This temperature will also do for most plants; some will thrive better with a higher range, but their cultivation should not be attempted in a sitting-room.

Where there is too much heat, and not well exposed to light, the plants will spindle up, and make feeble, sickly growth, and if they produce flowers, they will be so weak and pale as to excite the pity of the beholder.

Unless the pots are turned every day, the plants will grow one-sided; every plant should receive as much light as possible.

A stand for flowers should have rollers attached to the legs, so that the plants may with the least trouble be turned round to the light, or wheeled into the middle of the room at night, when the weather is severe."

J. F.

The Apple Tree Borer.—We copy the following from the correspondence of the *Rural New Yorker*:—

Inclosed please find a genuine Saperda bivittata, or *Apple Tree Borer*. It was taken from an apple-tree in my orchard, and is transformed from an ugly grub to the perfect insect, and is well fitted to choose a mate and go out in the world to propagate its species. This insect is so extremely shy in its habits, that it is seldom seen or captured, and this is only the second one that I have ever seen in the winged state. I would urge upon every one who is the owner of an apple orchard, the vital importance of waging a war of extermination against this insect, which appears so small and harmless, yet actually does more harm to the apple than all the other insects in America.

I have a fine apple orchard, about fourteen years planted, which I manage to keep pretty clear of the pest, by giving the trees a thorough examination in May and in October; and to sharpen the sight of the "boys," I pay for the first grub twenty-five cents, and five cents each for all the rest they capture, and you may be sure that they look pretty close after them.

We remove the earth from the collar of the tree, and then scrape the rough bark off; and if a dark spot is found, it is closely examined with the point of a stout knife. Sometimes they are just under the bark, like the peach grub; but generally they make a burrow in the solid wood, by cutting one-fourth of an inch in, and then working upward. Sometimes we find them about a foot from the surface of the

ground, but not often. In an orchard of about five hundred trees that we examined this spring we caught only fifteen grubs.

Old trees are sometimes so cut and perforated that it is impossible to get them all out without destroying the tree, which is the best way; for if one tree be left with a few grubs in it, it may be the means of stocking the whole orchard with them. My observation of the habits of this insect, has satisfied me that it does not travel fast, and persons who plant good *clean trees* in a locality where there are no grubs within a mile, may not be troubled with them for a life time; but don't plant trees unless you examine them well before you plant, as they are often sent out *gratis* with the trees.

Grape Manures.—Strong or stimulating manure is most dangerous to the vinous property of the Grape. The general rule in wine producing countries is to manure only with its own cuttings, or the refuse of the grape when pressed, which contain tartar, essential to the vinous property of the grape. Excessive richness of the soil, though it gives a larger crop, and the best fruit for the table, detracts from the character of the wine. There have been several remarkable instances of this fact; amongst others, the celebrated vineyard of Johannisberg, which some fifty years since having been richly manured, it for several years afterwards produced a grape which gave wine of an inferior character, and much deterioated in quality. It took twenty years before the soil became sufficiently poor to restore the vinous quality of the grape. Soils which produce choice and rare wines are never manured with any description of fetid manure, generally applied for the purpose of fertilizing land; but wool, horn, bones, and the cuttings and refuse of the vine itself, being only used. The scientific botanist tells us that the vine only takes up from the earth carbonic acid, ammonia, etc.: practice and experience, both ancient and modern, affirm the contrary.—*Florist and Fruitist.*

Suckers in Apple Orchards.

The remark is often made, that the suckers of apple trees used to graft stocks in, are apt to produce suckers. This is only true so far as those particular trees which sucker most abundantly are apt to be selected from which to obtain the supply, and of course the new stocks have the same peculiarity. Suckers should never be used for stocks; but if they are, they should be taken from trees producing the fewest. To clear suckers from orchard trees, they should not be cut off, for new shoots will spring from every stub left. The right way is to keep the ground smooth, mellow and clean; and then about the middle season of growth, or during the first half of summer, put on thick cowhide boots and stout buckskin mittens, seize one sucker at a time, placing the boot upon it close to the tree, give a sudden jerk with the hands, and it will be torn out root and branch, leaving no stump. An occasional repetition of this process will keep the orchard clear. Suckers always give a slovenly appearance to an orchard, and should not be suffered to grow. They also favor the depredations of the borer.—*Country Gentleman.*

Miscellaneous.

Coffee.—The consumption of coffee is estimated in the following manner:—The whole of North America consumes 337,500,000 lbs., being in the largest proportion. France, Switzerland, Spain, Italy, Portugal and adjoining islands, consume amongst them only 202,500,000 lbs.; Germany, including Austria, 292,500,000 lbs.; Holland and Belgium, 142,500,000 lbs.; Denmark, Sweden, Russia, Finland and Poland, only 75,000,000 lbs. among them, owing, probably, to the fondness of those nations for something stronger. Great Britain and Ireland consume about 60,000,000 lbs.

American Institute Fair.—The thirty-second annual fair of the American Institute, will be held at the Palace Gardens, in Fourteenth street, this city, commencing on Tuesday, September 25th.

American cotton manufacturers have done a most profitable business during the past year; and their prospects for the future are also very encouraging. The anticipation of good cotton crops from all parts of the world is affecting the manufacturers of England in a surprising manner. In Lancashire, about 40,000 factory operatives are wanted, and in the small manufacturing district of Bury, no less than 39 new cotton factories are now being erected.

The Idea of Fire among the Ancients.—According to Pliny, fire was for a long time unknown to some of the ancient Egyptians, and when Exodus the celebrated astronomer, showed it to them, they were absolutely in raptures. The Persians, Phœnicians, Greeks, and several other nations, acknowledged that their ancestors were once without the use of fire, and the Chinese confess the same of their progenitors.—Pompanius, Mela, Plutarch, and other ancient authors, speak of nations who, at the time they wrote, knew not the use of fire, or had but just learned it. Facts of the same kind are also attested by several modern nations. The inhabitants of the Mariana Islands, which were discovered in 1521, had no idea of fire. Never was astonishment greater than theirs, when they saw it on the descent of Magellan on one of their islands. At first they believed it was some kind of animal that fixed to and fed upon wood. The inhabitants of the Phillipine and Canary Islands were formerly equally ignorant. Africa presents even in our own day, some nations in this deplorable state.

Couch Grass.—A correspondent sends us the following dialogue, which took place in a cornfield, just as stated, all but the names:

Neighbor—Good morning, Mr. Plowwell—at the corn, I see. What has become of all the quack grass that was on this farm when you came here? While Slackwheell lived here he raised more quack than anything else, I believe, and it was called the most quackey farm around.

Plowwell—I smothered it.

Neighbor—Smothered it—how?

Plowwell—I plowed it from eight to ten inches deep, then cultivated it with a two horse wheel cultivator, and planted to corn. If corn is well tended, your quack will disappear, and if you wish to make summer fallow on quackey ground, plow but once. Quack grass, if turned up the same season, will grow again, but if kept under the ground, it will die.—*Rural New Yorker.*

Dr. S. S. Blodgett, of Ogdensburgh, N. Y., writing to the *Dental Cosmos*, condemns the use of fine charcoal as a tooth powder. He asserts that it is as sharp as diamond dust, and soon wears off the enamel. He says:—"The great dentifrice that should be used at all times, and under all circumstances, is soap. Its alkaline properties serve to neutralize the acids contained in the fluids of the mouth, and its properties will correct the breath and remove offensive odor sooner than any article I have ever seen tried."

Transactions.

Continued from page 416.

The settlers could now supply themselves with the necessaries of life from the mill and the store, and the roving and dissipated life of the soldier was forgotten in the staid and sober habits of the hard working farmer. A few of a more adventurous turn of mind at times would man a boat, and ascending the river to Oswego, take a circuitous route by lake and by river, and betimes carrying their boat shoulder high for miles at a stretch, finally reached the green valley of the Mohawk, dear to them still in memory, and returning brought such articles of merchandize with them as they could transport, and providing themselves with a passport at Carlton Island they swiftly glided down the river. As yet there were no schools. A good old German, however, whose name we cannot recal, gratuitously spent his time in going from house to house, teaching two weeks at a time in different neighborhoods, where the children congregated and received such instruction as the limited time afforded. Before the close of 1792 they had erected two churches, and thus a new era dawned upon the happy little colony of U. E. Loyalists.

[After sketching the laws, martial and civil, by which the district was governed in its early days, the report proceeds:]

Intermediate History.—From the year 1800 to the present time, the history of the County of Dundas is simply the history of Canada, and it is at least satisfactory to know that the progress and improvements of the County have kept pace with the prosperity of the Province as a whole

The war of 1812 found its inhabitants as loyal as of yore, and at their country's call they donned their armor once more and marched against the invaders of their country. The Militia of Dundas were ever found in their right place when their service were required. A detachment of them were in the engagement of "Crysler's Farm." Another remained to protect the town and fort of Prescott when the regulars went in pursuit of the enemy—in 1837 they were again called out to quell the Rebellion, and six companies of the Dundas Militia under Col. Crysler, numbering 350 men, were present at the battle of the Wind Mill; these were enrolled and under duty for six months at this time. Since then the peace and prosperity of the Country have been uninterrupted.

Hindrances to Agriculture.—The extensive operations in lumber consequent upon the clearing up of a new and well timbered country resulted in a state of matters very unfavorable for the progress of Agriculture. Having spent the winter in the woods the farmer had to spend the greater part of the summer in conveying his timber to Quebec. The farm was neglected, and as he could not raise even provisions enough for his own use, he was forced to apply to the storekeeper to furnish him, which he readily did at his own prices, taking the timber as security for payment. If at the end of the year the backwoodsman made ends meet, he had reason to be thankful. The majority however came out on the wrong side of the ledger, but the indulgent storekeeper was as accommodating as ever and was perfectly satisfied with a mortgage on the farm. In many cases the embarassed farmer, still clinging to the hope of redeeming his farm, embarked with renewed energy in lumbermaking; this time it was

to "make a spune or spoil a horn." In a few cases they were successful; in many instances the farm fell irretrievably into the hands of the merchant. The intimate and seemingly necessary connection existing between the lumberman and the merchant induced the long credit system which is now however fast disappearing.

At a more recent period and previous to the completion of the St. Lawrence Canal, the farmers of Dundas occupied much of their time in conveying goods and passengers from Cornwall to Prescott. The yearly increasing tide of emigration all bound for the West gave constant employment to as many teams as could he spared. This to a certain extent tended to divide the attention of the farmer from Agriculture again, but being a ready pay business it was found to be much more profitable than the lumber trade, the material for carrying on which were now becoming scarce in the country; and even for some time after the Cornwall Canal was finished all upward bound vessels had to be towed with horses from Dickenson's Landing to Prescott. The final completion of all the canals in 1847 and the introduction of powerful steam tugs removed the last hindrance to the progress of Agriculture, since which time it has received the undivided attention of the inhabitants and has proved by far more profitable than any of the enterprizes in which they had hitherto engaged.

Trusting that these few remaks respecting the settlement and early history of the County of Dundas may not be without some degree of interest, at least to its inhabitants, we now proceed to describe it in its different phases as it now appears, noticing them in the following order: Its soil and climate, system of farming pursued, agricultural productions and products of the forest, laborers, implements of husbandry, commerce and manufactures, animal, vegetable and mineral features, religious, social and political aspects.

Soil and Climate.—The soil is varied, chiefly however of rich loam, varying in depth from 6 to 18 inches, resting upon a substratum of bluish marly clay. It may be described for the most as level, at least with little more inclination than is necessary for carrying off the surface water. In some parts towards the centre and rear of the county it partakes more of a rolling character, but in no place does the land rise to any considerable elevations. It is interspersed with numerous swale or low lands, not of sufficient extent to entitle them to the name of swamps, and differing importantly from these, inasmuch as they are all capable of drainage. In most cases where the swale has been cleared of the timber, a single ditch through the centre suffices to carry off all stagnant water, when the land is found to be of the richest and most productive nature. These swales as well as the other lands are comparatively free from stones. On the contrary where the land partakes of a rolling nature we usually find the surface freely covered with boulders. A few sand knolls scattered through the country, barely suffice to furnish materia for brick making and building purposes.

In addition to these swales, which are always heavily timbered with elm and ash, there are three cranberry marshes of considerable extent. The largest is situated in Winchester and covers an area of about 800 acres. These marshes, situated in a thickly wooded region, themselves destitute of a single tree, save here and there a scrubby spruce, present a very singular and interesting appearance. They are completely covered by cranberry bushes and are resorted to by swarms of busy berry pickers at the season when they are ripe. The soil is a black muck not unlike the peat moss of Scotland. The marshes are inundated each spring, but are quite dry again in summer. The bushes from accidental causes or otherwise are burnt off every few years, the fire sweeping every trace of vegetation clean before it, as in the prairies. The succeeding crop of young bushes is generally most prolific.

As has already been mentioned, all the choice market timber, such as Oak, Pine and Elm, has long since disappeared, while the stumps, especially of the Pine, remain a convincing and lasting monument of the dimensions of the huge denizens of the forest. Here and there are to be found entire Pine trees of immense size, cut 60 years ago for masts, which for a slight flaw had been rejected, mostly quite sound. These are converted into saw logs and shingle blocks. In the meantime the beech and maple saplings which by a law of nature seem to supplant the coniferous species, have grown up into stately trees, and another mine of wealth has been sprung, affording winter occupation to the farmer in cutting cord wood, and drawing it to the river. The hard wood

finding a ready market in Montreal and the soft wood supplying fuel for railways and steamers.

There is also abundance of cedar used for making fences, and also as floats to convey the cord wood to market. Hemlock and balsam occupy sandy knolls; and wherever beech and maple thrive we are sure of finding an excellent soil and especially adapted for wheat.

The clay of the county is not esteemed very good for brick making, being slightly mixed with fragments of lime stone, which are calcined in the process of burning the brick; and subsequent exposure to the weather makes them liable to crack. Most of the brick used in the county is brought from Aultsville in Stormont or from Waddington in the U. S. immediately opposite.

There is abundance of good building stone in the county, though not very equally distributed. The quarries are chiefly in the centre and rear. The stone is near the surface in layers of from 6 to 10 inches, is of hard grey limestone and is sold at the quarry for $1 50 per cord. Common field stone, suitable for rough purposes, is delivered in any part of the county at $2 00 per cord, and well burned lime at 20cts. per bushel delivered.

The soil of the county upon the whole is admirably adapted for pursuing the mixed system of husbandry. Wheat, corn, and potatoes are here successfully cultivated, while it is equally well adapted for the coarse grains, grass and roots.

The climate may be fairly stated to be a mean temperature between Momtreal and Toronto, the extreme of heat and cold being less severe than that of the former, while a longer cantinuance of snow in the spring retards agricultural operations 10 days or 2 weeks later than in the neighborhood of the latter.

The "Oldest inhabitant" says that the climate is less severe since the country has been more generally cleared up. The winters have been shortened at both ends, whilst the clearing up of marshes and woodlands has at once admitted the fresh air, greatly diminished the number of misquitoes and other like pests, and rendered the whole country healthy and pleasant A few facts in connection with this are not without interest, and will bear us out in these remarks.

By the census of 1852, the population was 13,865, the number of deaths in one year 64, being a ratio of 1 death to 216 living, a ratio far more favourable to our County than any portion of Canada or the United States, with two exceptions, and singularly enough these two are our next door neighbors in Stormont and Russell, the ratio of the former being 1 in 240, and the latter 1 death for 220 living. The next below us being a third neighbor, Carleton, 211. Addington and Kent of similar population are respectively 1 in 98 and 1 in 84, while in Maine, U. S., the ratio is 1 death for 77 who survive. We may here state that the OLDEST INHABITANT is no imaginary personage, but a most interesting old lady, Mrs. Coons, residing in Iroquois, now in her 94th year, and in full possession of all her faculties. Peter Shaver, Esq., is one of the oldest male inhabitants, now in his 84th year; both these have a very distinct recollection of the first settlement of the County, and of the trials and difficulties which followed. We mention their names particularly, because to them we are largely indebted for information and for substantiating certain dates which will be hereafter mentioned, possessing an interest far beyond the limits of the County.

IRRIGATION.—The County of Dundas is well watered. In front is the noble St. Lawrence, here averaging a breadth of nearly a mile and a half, and of great depth. The current is swift, with an average speed of 7 miles an hour, and from its purity and softness, is generally preferred for all culinary purposes. The Rapid du Plat shoots past the centre of the County at a rate of from 10 to 12 miles an hour. In rear it is watered by the Petite Nation River, with its numerous tributaries, and in addition it is intersected by small creeks in various parts of the County; these are fed by springs and swales, and in the spring and fall, assume large dimensions, giving motive power to numerous creek mills, which, though only in operation for from 3 to 4 months in the year, are nevertheless a valuable acquisition to those living in their neighbourhood.

An abundant supply of excellent well water is found all over the country on reaching a depth of from 15 to 25 feet. Besides this, numerous springs are met with, affording the fortunate owners an inexhaustible supply of pure water without any trouble or expense on their part. There is also in Winchester, a mineral spring, similar to the celebrated Massena Spring, and held in some repute for its medicinal qualities, but as no

hotel has as yet been built to accommodate visitors, it is not much frequented, except by those living in the neighborhood.

Upon the whole then, we cannot describe Dundas as otherwise than decidedly favourable, in regard to soil, climate and water, for the successful practice of Agriculture; while its geographical position, and facilities for reaching market in summer or winter, are scarcely equalled, certainly not surpassed by any other county in Upper Canada.

Roads.—Within the past ten years the roads of the County have undergone a vast improvement. During the last four years the large sum of £5,577 19s. 8d. has been apportioned to the County from the Clergy-Reserve Fund, secularized in 1856, and this was all expended on roads, and considerable sums continue to be annually applied to the same purpose by the several Municipalities. The result is highly satisfactory. Remote parts of the County, formerly all but inaccessible, are now easy of access. Instead of toiling through the mud, knee deep, or bumping over the rough corduroy, dreading a break down at every step, and arriving at his journey's end much in the condition of a rat from a terrier's mouth, the farmer now moves along swiftly and aristocratically in his light spring buggy, or with his wagon load of grain, with ease and comfort to himself and his team. The value of lands in the rear has thereby increased ten fold, precious time has been saved, and wear and tear proportionably diminished. Abundant supplies of the very best quality of gravel for road making are found in various parts of the County, and much of the Statute Labour is absorbed in placing it on the roads.

The highways in the centre and rear of the county, being generally nearer the supply, have improved proportionally faster than the front roads. With the exception of two, one built by a Corporation, and one by a Joint Stock Company, our roads are all free from the nuisance of the toll gate.

System of Farming.—In carrying out our programme, we would now advert to the system of farming pursued in the County. We must confess to a certain measure of hesitation in dealing with so important a matter as this, and, however much our inclination might lead us to let your Board form their own opinion from the statements to be submitted, we feel it to be our duty as Directors of the County Agricultural Society at this time to speak the truth, the whole truth, and nothing but the truth.

We fear our system can scarcely be otherwise defined, than as the absence of any system at all: to take from the soil all it will yield and to return to it no more than necessity compels us to do. We do not however despair. We derive strong consolation from the fact, that in this respect we are perhaps no worse than our neighbors in other counties, and further, that, while the remark holds good applied to us as a whole, we have even now not a few excellent, systematic, and, as a result, *money making* farmers among us, and we shall endeavor to place before you the system, be it good or bad, successfully pursued by them.

It may be premised that as a general rule it is found to be disadvantageous to run too much upon any one thing, the greater the variety, the greater seeming success.

We shall have nothing to say of the backwoodsman, manfully struggling to subdue the mighty forest, which in some places seems almost to defy the efforts of mortal man to subjugate it to his use, and at the same time contending with poverty, no less difficult to be overcome; we look for no clearly defined system at his hands, but are willing that he should take it just as it comes, and and make the most of it. It is to the old settler on his well cleared farm that we must look for information on this head.

The following system is pursued by one of our best and most successful farmers' evidently the right man in the right place, the President of our Agricultural Society. His farm embraces 500 acres, whereof 300 are cleared. His whole farm is enclosed with cedar fences, proof against all intruders, by which means his cattle have the exclusive and unrestricted privilege of roaming through the woods, with all the benefits thereto appertaining.

Of his cleared farm 120 acres are devoted to pasture, 100 acres to meadow, and 80 to tillage. His stock consists of 20 milch cows, 6 working horses and two brood mares, with 60 sheep. He makes from 10 to 20 acres of summer fallow every year, to which he applies all the manure made upon the farm, and as much more as he can procure from the neighbouring Village of Morri-burgh. The proportion of different grains is regulated entirely by the adaptation of the different fields entering into his rotation. He sows each year a certain portion of fall wheat and

rye, and carefully avoids running into extremes. He ascribes his success mainly to the diversity of his productions. He employs cheap labor, say three at $8 per month for the year round, and keeps a sharp look out upon them; he generally has an apprentice or two, who work gratuitously, and are paid off with $100 or so when they come of age. In hay and harvest time he employs 6 of the best men that can be had, at from 75c. to $1 per day. At these times he can conceive it to be important to be strong-handed, and always takes time by the forelock. He begins to cut his clover hay in the end of June; and by the time the timothy is ripe, he cuts it down in the morning, spreads it out immediately, and puts it in the barn before night. He uses a horse-rake, but no reaper, and the greater portion of his grain he thrashes with the flail, just as it is required for his cattle. He raises 8 calves, and sells as many head of cattle at 3 or 4 years old; two colts at 4 years old yield him yearly $100 each. He has his own wool made into cloth for his own wear, eats his own mutton, and has always some to sell. He has neither Ayrshire cows nor Clydesdale horses, but has great faith in both, and will take the first opportunity to get into these breeds.

He wages a war of extermination against wild mustard, thistles, and quack, and very rarely do his crops disappoint his expectation. He has 8 wells with chain pumps, and keeps his cattle trough always full of water, and supplies them with abundance of salt in summer. All his grain is freely salted as it is stowed away in the barn, and the straw is highly relished by his cattle in winter. His brood mares run on the straw yard, and suckle their colts all winter until the 1st of April, when the colt is weaned and cared for. His cattle are fed in winter on straw, with a very little hay, and neither root nor grain, and in spring never need to be *tailed*. He carefully removes all surface water, but does not underdrain his land. Every thing is profitable, but hay excels them all. His average return of hay is 1¼ tons per acre, his maximum 2¾, and his minimum ½ ton. He sells largely every year of hay at an average price of $10 per 2000 lbs He states the average yield of hay for 1859 from the whole County to be not exceeding ½ ton per acre. He considers roots too expensive, and his principle is to keep no more stock than he has abundance of food for.

This is his usual rotation of crops:—

On Heavy Rich Land.

1. Summer fallow manured.
2. Wheat.
3. Corn and potatoes, no manure.
4. Barley or peas.
5. Oats
6. Summer fallow manured.
7. Wheat seeded to grass.

On Lighter Soils.

1. Summer fallow manured.
2. Corn and potatoes.
3. Barley and seeded.
4. Grass cut 3 years.
5. Pasture 2 years.
6. Peas followed by fallow.

The following treatment of old meadows is found successful in his hands:—Break them up in the fall, summer fallow ensuing summer without manure, and seed down in August without a crop. He generally gets 1½ to 2 tons from the first 2 crops. To every 10 bushels of timothy sown, he adds 120 lbs. of clover, and sows ½ bushel per acre of the mixture. If his cattle cannot consume the aftermath, he cuts a second crop of hay. He opines that grass seed is generally sown too thin, that farmers are too careful in extirpating weeds, that practical farmers *work* too much, and that gentlemen farmers *oversee* too little. It is a mystery to him to hear intelligent and industrious men speak of farming as unprofitable, and the summing up of his evidence leaves no doubt in our minds that his system PAYS! which he corroborates by the following figures:—In 1832, he went on to a farm of 250 acres, with 2 horses and 2 cows, and $400 of debt. In 1840 he purchased 250 acres adjoining, for which he paid in cash down $4000. Up to 1860 he has spent at least $4000 cash in building and fences, besides other large improvements. He has cleared for the last 20 years more than $600 per annum, and has now $10,000 at interest at 10 per cent. He values his farm at $14,000, and is quite satisfied that it yields him not less than 10 per cent. per annum clear of all expenses.

DAIRY FARMING.—Dairy farming is not extensively practised. We have but one in the county who devotes exclusive attention to it. His farm extends to 300 acres cleared, of which 150 acres is in pasture, 50 acres in meadow, and 100 under tillage. He pays an annual rental of $450, or $1.50 per acre;

keeps 56 cows he values at $35 per head; he makes annually 230 cheeses averging 60 lbs. each, which he sells for 10 cents per lb. He raises 13 calves and fattens 6 pigs, both are chiefly fed upon whey, and disposes yearly of as many old cows as he can replace with young ones. He has 6 head of horses and 10 sheep. His average cut of hay is one ton per acre. As a rule he grows enough hay and straw to feed his cattle in winters. His cows are fed hay and straw daily in winter, and stabled at night without bedding. In the fall they are fed oats in the straw until 1st December, when they are all put dry. He feeds some bran in spring, but neither roots nor grain. He keeps in summer two hired men and one female servant. His farm is economically managed, and he is reported to be making money.

Improved Stock Breeders. — Very little attention has as yet been given to what is called the improved breeds of cattle; more or less there has been a certain amount of prejudice against them. It seems difficult to give the objections to their introduction a tangible form. The prevailing idea is that they consume too much food in winter. In other words we are disappointed to find that they will not live on air, and to observe that in this respect they are no better than our native cattle. J. W. Rose was the first, many years ago, to introduce Durham and Ayrshire breeds of cattle. On leaving, his stock became scattered through the country, but being, in most cases, subjected to doubtful treatment they were pronounced inferior to the natives. It is our firm opinion however, that the opinion is erroneous.

Mr. Elliot, of Matilda, has some good stock, and keeps them well; he commenced by purchasing some high priced animals from the late Ralph Wade, of Cobourg, in 1855. Since then he has raised some choice stock. We submit the result of his observations and experience in this matter:— He conceives the most desirable breed of cattle for this country to be a cross between Durham and Ayrshire, and the next best to that, Durham crossed with native. With nothing more than fair treatment, they thrive with him equally well with the native breeds, far excelling them as milkers, and when fat will readily bring double the price as beef. He finds the yield of milk from a half Durham, quarter Ayrshire, and quarter native cow to be 25 quarts per day for three months after calving. A steer 18 months old was killed by him in December 1859, which at no time was stall fed, had only the run of the common pasture, rendered scanty by an exceedingly dry summer, the four quarters weighed 500 lbs., worth 4 cents per lb., the hide and tallow 100 lbs. more at 8 cents, yielding $28 for a yearling steer. He does not believe in *high feeding*, but takes particular care of his calves by giving them plenty of such good homely fare as every farmer can command, a warm stable in cold weather and a comfortable bed to lie upon. The first year, he says, forms the character of the beast. It is true they refuse to live upon *nothing*, but with ordinary attention he has no trouble in raising them. He considers that the cattle of the county, as a general rule, are well summered and badly wintered.

Sheep.—Much improvement has of late years been manifested in regard to sheep. The most desirable breed for the county is thought to be a cross between the Leicester and Cheviot, combining the properties of superior mutton, heavy fleeces of moderately fine wool, with a healthy constitution. The natives are more easily *imagined* than described; they have not a good point that we can lay hold of: *low necks*, long legs and light fleeces, restless and roving in their dispositions, they will bound over the highest fences. It is from this cause that we find the ringleaders of every flock *shackled*, or with a bell strapped round their necks. This is humane in comparison with the French farmers of Cacouna, who deliberately cut the hoofs of their sheep off to the quick and leave them to hobble in agony on their knees.

Pigs.—We are more happy in pigs than in sheep; the small Berkshire, weighing, when dressed, about 300 lbs., is the *ne plus ultra* of pork, easily fed, comes soon to maturity, and when placed on the table is unsurpassed.

Horses.—In these there is great room for improvement. The breed is deteriorating in size and symmetry. There is not a good entire horse in the county. As with cattle, so with horses, a strong unfounded prejudice has hitherto existed against heavy horses. An imported Clydesdale, a valuable and excellent specimen of the breed, was introduced some eight years ago. He was regarded as an *innovation*, and as he was not appreciated he was withdrawn and sold near Ottawa for $1000 cash; precisely the sum he cost as a two year old, laid down on

the wharf of Montreal from Rutherglen, Scotland. The scanty stock which he left in the county are now the very best horses we have, and can scarcely be bought for love or money. The much talked of "horse of all work" we esteem to be a manifest *popular delusion*. The *fast* man must still drive his *fast* horse, the *working* man his *working* horse. When a heavy load is to be started from an ugly place the 2-40 animal will not do. The horse of all work is well adapted for a light harrow or for scarifying the surface with a light plough, but to plough heavy land with a good deep furrow we want heavier metal.

Of Renting Land.—We may state the average annual rental of fair farms in the county to be $1.50 per acre including pasture, meadow, and tillage. Farms are frequently let from year to year. To a certain extent this betokens a mutual distrust between landlord and tenant, and is consequently a barrier to any permanent improvement of lands so let. As the great bulk of our farmers are their own landlords it is unnecessary here to refer to the numerous disadvantages to the landlord, tenant, and the soil, induced by the short sighted policy of short leases.

Renting Land on Shares.—A different method of letting land has, during the past few years been more generally adopted. We refer to the share system, which operates in three ways. 1st. The tenant finds all his own implements, stock and seed, and yields the landlord one-third of the gross produce of the land, including hay and straw. 2nd. The tenant finds his own implements and stock, and one half of the seed, and yields the landlord one-half of the produce. Or, 3rdly. The landlord finds all the implements, working horses and seed, and receives two-thirds of the gross produce. The second course is most commonly adopted, and is usually the dernier resort of what Mr. Hogan describes as the would be gentleman farmer. We submit the following exemplification of this class:—A farmer whom we shall style No. 4, purchased a farm of 500 acres, whereof 250 were cleared, and for 10 years prosecuted his calling with energy and assiduity. He procured the best stock within his reach, the best implements to be had in the country, employed the best laborers at the highest wages, and erected buildings in every respect complete and convenient for conducting a farm to advantage. At the end of 10 years there was but one trifling desideratum: he could not exhibit a balance sheet; in other words it didn't pay. In this respect alone he resembled immortal Mechi of Tiptree Hall, at the end of his 10 years probation, with this difference however, that he failed in securing for himself a name, which was profitably turned to account by Mechi in vending razor strops at No. 244, and 45 Leadenhall Street, London. Discouraged, but not in despair, his farm is now managed on the shares system, and the following are the figures for 1859, an unfavourable year on account of long con inued drouth, severe potato rot and frost blighted corn. Hay averaged 1 ton per acre, valued at $14. Wheat 15 bushels per acre at $1.10. Oats 35 bushels per acre at 35 cents. Buckwheat 29 per acre at 40 cents. The following is his rotations of crops: 1st. Summer fallow, or hoed crops, manured. 2d. Wheat or barley, seeded with timothy, 1 peck, and 5 lbs. clover. 3rd. Meadow cut 3 years, with half barrel of plaster the third year. 4th. Oats or peas followed by green crop manured. Of 250 acres, 56 were let for $75 or $1.35 per acre. 194 acres let on shares which yielded a clear rental of $4.90 per acre. Orchard and half of pasture retained by landlord.

By his share of produce.....	$940 04
" Rent from other portions, houses, &c.....	130 00
" Live Stock sold, wool, &c.....	296 00
" Rental of house and garden, (cost £2000).....	365 00
	$1731 04
Expenditure for seed, &c.....	130 80
Net return.....	$1600 24

Cash value of farm say $16,000—Interest 10 per cent per annum.

If these examples are of any service in describing our system of farming, we can vouch for the correctness of the statements produced. The first and last are the nearest approach that we can give to any system here. The other two are as yet the exception. Underdraining is much needed here, and little practised; like other improvements it only wants a beginning, and were a few of our good practical farmers to try the experiment of thorough tile draining, we have no doubt but that it would soon become general. Perhaps one of the greatest errors in our system consists in keeping more stock than we have sufficient food for, the result is

that the straw, instead of being made into manure, is nearly all eaten up, and there being no facilities for purchasing manure it becomes a difficult matter to keep the land in a productive state, and it has become a serious question amongst scientific and intelligent farmers whether, even with the very best management, the ordinary resources of an ordinary farm are capable of maintaining the fertility of every portion of it.

The horse hay rake has long been in general use; the American style upon wheels four feet high seems to preponderate. Reaping machines have been introduced and are successfully worked.

In view of our present facilities for successfully prosecuting agriculture, and the very general indication of intelligence and improvement every where observable, we confidently anticipate that the next ten years will exhibit a progress far beyond anything that we have hitherto witnessed in this country.

Of Labourers.—The greater part of the labour of the farm is performed by the farmer himself, his sons and daughters, the former managing all the out-doors operations, and the latter the dairy and domestic departments. Herein indeed lies all the secret of his success. Whatever qualifications the farmer should have, mental or physical, all are agreed on this one point—that a good wife is indispensable, and what it is the aim of the husband to accumulate, it becomes the province of his wife to manage, and whenever we hear of a managing wife, we are sure to find a money making farmer, and *vica versa*.

The average of our farms are 100 acres each, with from 50 to 70 acres cleared, two-thirds of which may be in pasture and meadow, the remainder in tillage. The demand for labor is therefore limited, and the supply equal to the demand. In 1852, there were in the county 1258 laborers, 53 male and 74 female servants, while at the same time there were 1570 farmers; three-fourths of the female servants are employed by other than farmers, so that not more than 18 farmers' wives required *hired help*. The usual rate of wages for laborers in the county is from $10 to $12 per month, for the summer, $8 to $10 for the year round, $7 to $9 for the winter. Daily laborers in summer receive from 50 cts. to $1; in winter 50 cts., and expert cradlers earn their $1 25 per day, all boarded. Laborers are chiefly immigrants, Irish, German, and a few Scotch. They seldom continue at service longer than four years. If during that time they are industrious and economical, they have laid up enough to stock a small farm, remaining as tenants a few years. They meantime look for a desirable bush farm that they may call their own, and so soon as a suitable one turns up and they can muster $100 as a first payment, the transition takes place, the log shanty is erected, and the labours of the early settler are re-enacted; with this difference, that the modern backwoodsman is surrounded with tokens of civilization, in roads, markets, and mills, which far more than compensate for the difference between paying $100 for his lot and receiving it as a gift from the Crown 75 years ago. Mechanics are well paid and there are enough of them. Carpenters, blacksmiths, masons and bricklayers receive from $1 to $1 50 per day, with board. In 1852 we had 76 carpenters and joiners and 10 masons; with regard to blacksmiths and bricklayers the census is silent; the returns from Lower Canada are in this respect more correct.

Agricultural Implements.—The implements of the county are keeping pace with other improvements. The first portable thrashing machine was introduced 25 years ago. It was one of the American 8 horse power thrashers, without any separator whatever. The whole power was expended in turning the cylinder of 2 feet diameter at an enormous velocity of 1500 revolutions in a minute, (the maximum speed of the drum 3 feet in diameter, of the best British mill is 400). It literally devoured the sheaves, required 10 to 12 hands to attend upon it, and left the barn in a woeful state of confusion. If kept on full speed for 10 hours, it would thrash 500 bushels of wheat. In short it was quite in advance of the age, and was soon superseded by one of much humbler pretensions, driven by the revolving platform horse power, a Yankee notion.—About 1840 the first treadmill, as it was called, was here introduced.

In 1859 there were 10 reaping machines and 200 thrashing machines in the county, the latter chiefly of Paige's and Johnston's make, Montreal. Cash price delivered here, £50. They are very compact, durable and effective mills, with separator and fanning mill combined, and will thrash and clean upon an average 60 and from that to 100

bushels of wheat per day, and from 150 to 250 of oats, according to quality. Circular saws mounted on a frame ready for work, costing $40 are much used; they are driven by the same horse power placed at a lower elevation, and will cut 30 cords easily in a day with 4 or 5 men to assist.

Of ploughs we have an endless variety. The best is undoubtedly the Scotch plough, of which there are not over a dozen in the county. The nearest approach to that and consequently the next best that we know of, is one made by James Millar & Co. in Morrisburgh, which they sell complete for $8. The 40 tooth diamond Scotch harrow, covering 9 feet, is fast superseding all others on clear land and is the best. No grubbers are used in the county, and sub-soil ploughs very rarely. Cultivators worked between drills of corn and potatoes are commonly used. Turnips, carrots and mangels are not extensively grown, and are sown by hand, we have no machines for drilling in grain, nor broadcast sowing machines; the latter, covering a space of 16 feet, the width of our ridges, would be a valuable acquisition. Wooden rollers are used to some extent. They are very perishable, and cast iron ones too dear. Two horse lumber waggons costing $70 each, are used to transport all the commodities of the farm. Carts are considered a one-horse affair, and are not much used; they are made with wooden axle trees from $20 and upwards. The price of a good lumber sleigh with box complete and painted is $24. Excellent fanning mills are made at Morrisburg by McKenzie, at the price of $24 each, and are largely exported to adjacent counties.

These embrace the principal implements used here; they are all of Canadian manufacture, and with the exception of a sowing machine, we are not aware that any others are at present required.

AGRICULTURAL PRODUCTIONS.—We find it impossible with the means at our disposal to give a correct statement of the agricultural products of the county for the year 1859. And as any figures we might present would at best be only an approximation, and as we wish to state nothing here that we cannot fully substantiate, we prefer to go back 8 years and give the products of 1852, merely premising that the figures fall immeasurably short of what will be exhibited by the approaching census of 1861. What we now submit however will serve to show the proportion of different grains cultivated and the average per acre.

AGRICULTURAL PRODUCTS OF DUNDAS, FROM CENSUS OF 1852.

GRAINS.	ACRES.	BUSHELS.	AVERAGE.
*Wheat	7,308	111,979	15 20-60
*Barley	930	21,432	23
Rye	525	9,329	17 4-5
Peas	1,938	32,863	17
*Oats	6,654	155,381	23⅓
Buckwheat	833	16,321	20
Potatos	1,435	90,877	63
Corn	1,003	22,109	22
Turnips	31	2,396	76
Carrots	....	2,132	
Mangel Wurzel	....	3,911	
Wool lbs.	50,404	3¼ lbs. per fleece.	
Butter "	358,488	per cow 66 lbs.	
Cheese "	15,918	" 3 "	
Maple Sugar "	36,850		
Hay tons.	14,385	acres not stated.	
Horses	3,863		
Cows	5,454		
Sheep	15,298		
Pigs	6,740		

COMMERCE.—The total value of goods sold in the county in 1859, is as follows:

Township of Williamsburgh	$150,000
" " Winchester	75,000
" " Matilda	76,800
" " Mountain	18,500
Total amount paid by farmers for goods	$320,300

There are in the county 2,666 families who thus tax themselves the sum of $120 each per annum for store goods.

There are 30 shops and stores in Williamsburgh, 24 in Matilda, 11 in Winchester, 7 in Mountain, in all 72.

Traders sell at an average advance of 25 per cent. for cash.

[The report here gives a series of tables of exports, for which we have not space. The following is the summary:]

Williamsburgh and Winchester exported	$139,760	29
Matilda and Mountain "	98,885	96
Total export of county, 1858	$238,646	25
" imports " "	320,300	00
Excess of imports over exports	$81,653	75

The deficiency of exports to pay for imports is accounted for by a large proportion of produce sold by merchants to laborers in

*There is a slight variation in the tabular and abstract returns of these in cens.

the county, and by a considerable amount taken out of the county by private parties.

Customs, 1859.—Value of goods exported to United States and passed the customs, travellers, carriages, &c. exclusive	$40,189
Value free goods imported from United States	24,901
Value duty paying goods.....	6,399
Total imports from U. S....	$31,300

Free goods are those imported under the Reciprocity Treaty, two-thirds of which are composed of travellers' horses, &c., settlers' goods, &c. &c.

Freight forwarded by Grand Trunk R. R. Co., 1859, from the county, 2,202 tons.

Manufactures.—The following mills and manufactories in the county, 1859:

Grist Mills, 8; No. Run of Stones, 19; Saw Mills, 26; Number of Saws, 43; Carding Mills, 4; Tanneries, 8; Carriage Factories, 4; Foundries, 1; Chair Factories, 3; Stave Factories, 2; Lock Gate Factories, 1; Fanning Mill Factories, 1; Total by power, 42; Total by water, 31; by Steam, 11.

These mills and factories work chiefly for the home market, and their exports are included in the general exports of the county. Grist mills grind on an average 6 bushels wheat per hour each run of stones. Saw mills cut per day 2,500 feet each saw while working. Carriage factories turn out annually 38 buggies at $90, 70 cutters $32, 30 waggons at $70. The steam-stave cutter cuts 10,000 per day, or 60 to 70 per minute while working, has a 25 horse engine which runs on refuse shavings alone, and employs 10 hands; staves cut by circular saws are a trifle more valuable, and are turned out 7 to 8 per minute.

The fanning mill factory has an engine 8 horse power, runs on shavings, employs six hands at $1 per day and turns out 250 mills per year at $24 each, 200 of these are sent to Montreal, Ottawa and Glengarry. The foundry casts 65 tons metal annually, and turns out 400 ploughs at $8, and 75 stoves at $20, besides other castings.

The lock-gate factory employs 12 hands, and turns out 7 pair lock gates at $3,000 per pair.

A first-class grist-mill of stone or brick, with flume complete costs $3,500 to $4,000 per run of stones. First class saw mill complete, except the dam, costs $1,000 to $1,500 per saw. First class high pressure steam engine, except the building, costs $100 per horse power delivered here. A well finished farm house 26 by 36, with kitchen, &c., 18 by 24, 1½ story, with cellar complete, costs $1,600. A barn costs $4 per foot in length. Board fence with cedar posts sunk 4 feet or a straight well-built cedar fence costs $1 per rod. Bricks $4 per thousand at the kiln. Stone $1.50 per cord at the quarry. Lime 15 cents per bushel at the kiln.

Social Aspect.—Under this head we shall endeavour to present a brief outline of the manners and customs of our people at the present day; their position in regard to legal, municipal and educational institutions; the different public societies to be found among them, and the public burdens.

Mr. Hogan,* in his admirable prize essay of 1855, speaking of the farmer of Upper Canada, describes us so truly that we have merely to quote his words:—"The farmer of Upper Canada has plenty, and he enjoys it. A large proportion of the people sit at the same table with their servants and laborers."

There is found to be a mutual dependance between master and servant, which completely removes the distinctions subsisting in older countries betwixt these relations. As a result of this, the man who is willing to place his servants upon terms of equality with himself is never at a loss for help, and his work is well and cheerfully performed, while on the other hand, those coming from the old country and who feel disposed as it were to stand upon their dignity, more or less, experience great difficulty in meeting with suitable *servants*, and it is rarely the case that servants remain long in one place. "As a general rule, the gentleman farmer, or rather the gentleman *who would not be a farmer*, because he would not learn the value of labour, has *lamentably failed*. The gentleman however, who is willing to strip off his coat, and as the Yankee quaintly observes, to march forward to the music of his own axe, may be certain of plenty and of leaving his children well off." A sensible Scotchman who raised himself from being a ploughman to affluence, forcibly remarked, "Na, na, there's nae gentlemen in this country," and we believe there is more truth than poetry in the assertion, whilst the senti-

* This was written before Mr. Hogan's singular disappearance had begun to excite remark.

ment of Burns, at once poetic and true, find an echo in each of our sturdy farmers :

"What tho' on homely fare we dine,
Wear hodden gray an' a' that,
Gie fools their silks and knaves their wine,
A man's a man for a' that."

To the patriotic Canadian this state of society is rather pleasing than otherwise. It begets a friendly and harmonious feeling, and infuses a spirit of independence and enterprise amongst all classes,—honesty, industry and intelligence never fail to be recognized in whatever station the man is found. Not unfrequently those who are learned in literature and law have to chew the bitter cud of disappointment, and in aspiring to positions of elective distinction, have to succumb to the practical farmer or the industrious mechanic, whose accomplishments are summed up in the one comprehensive term—*plain common sense.*

As a class, our farmers are persevering rather than enterprising, slow to compromise themselves by word or deed, but honest in their transactions; the faculty of accumulating property is fully developed; never flush of money, they are yearly surrounding themselves with all the necessaries, and most of the comforts of life; the home spun hodden gray, manufactured in whole or in part by the farmer's family, forms his daily dress, while the finer fabrics of Scotch tweed and English broadcloth supply them with a suit for Sundays. The wives and daughters of our farmers are neat and tidy in their persons, frugal and industrious in their habits, and not slow to bear a hand when help is needed in the barn or in the field. And when attired for "meeting," even Broadway itself cannot present a more elaborate extension of hoop and crinoline, with all the modern and fashionable embellishments. If one farmer is blessed with a family of sons, seldom more than one or two remain at home, after receiving as good an education as the county affords. The rest branch out in different ways to push their fortunes.—Some spend a few years as Common School teachers, and thereafter engage in any other more lucrative employment that may offer. A large number have found employment, with fair remuneration, in the management of railways, steamers and telegraph; some have studied medicine at Toronto and Montreal, only a very few have turned their attention to law, they are rarely found behind the counter, while divinity appears to possess no attraction whatever, at least we are not aware of any such students natives of the county. This is certainly a matter of regret, and must be regarded either as an indication that the office of the ministry is not appreciated and supported among us as it ought to be, or that the principles of self-denying Christianity are still latent here.

Love of home is a prominent trait in the character of the young men of Dundas, hence very few have been tempted to the gold diggings of Australia or California, while the greater part of those who leave the paternal roof ever cherish the hope of returning at some future time to abide in their native country.

Municipal—In 1800, we find from an old collector's roll that a uniform rate of assessment was imposed upon each freeholder of 2s. 6d. for each 100 acres occupied by him, 2s. if under 50 acres, and 1s. for a householder.

In 1832 the assessment for the Eastern District purposes was at the rate of 1d. in the pound, and the amount raised was $7,080.

In 1858 the total assessment of *Dundas* for county and township purposes, was at the rate of 2 cts. in the pound, and the amount raised was $10,000.

Williamsburgh expends yearly in roads $2,000, and Matilda $1,600, exclusive of Clergy Reserve appropriations. The total amount received from this fund in 4 years ending 1859, was $5,577 19s. 8d. the whole of which was also expended on roads.

The number of brick and stone buildings in the whole Eastern District in 1832, was 36, and in 1852 the number in Dundas was 109, in Stormont 96, and in Glengarry 59, total 264. Next census will find Dundas at least trebled.

[Some statistics in regard to educational and other matters are here unavoidably omitted. The facilities for obtaining a grammar or Common School education are shown to be good, and at a moderate cost.]

Agricultural Societies.—The first Agricultural Society in the county was established in the year 1830. In February, 1853, a society was organized under the Act of 1852, and has continued in existence from that time, with some slight modifications in the constitution under the Act of 1857.

It affords us pleasure to testify to the steadily increasing efficiency and usefulness

of the County Society as now organized. Although still very far from the position we should like to see it attain, each successive annual exhibition marks improvement in some agricultural feature or other. At the last show held in October, 1859, the improvement in horned cattle was very decided, some fine specimens were exhibited of well bred Durhams. In sheep there was also an improvement, and a ready market for all that could be spared was found upon the spot. Horses, however, were inferior in quality to former exhibitions. There was an excellent display of butter, while the grain and vegetables were very creditable. The number of spectators was beyond former years, giving symptoms of increasing interest.

[We here omit a large portion of the report relating to the denominational religious institutions of the County.]

Public Burdens—Assessed and Voluntary.—The Municipal assessed taxes come to 2c. in the $4; additional school tax. 1½c. in $4; voluntary religious tax, 1½c. in $4; total tax for School, Church, and State, 5c. in $4; or at the rate of 1¼ per cent. on the value of property. *E. g.*—A farmer who owns 100 acres of land, which with his personal property is valued at $2,000, would pay municipal taxes, $10; school tax, $7.50; for religion (if he paid his share) $7.50; in all $25 per annum. The *storekeepers'* tax amounts to 64 cents in $4, or at the rate of 16 per cent, annually on the value of property.

Conclusion.—We believe there is no such thing as sublunary perfection, and even though there were, we should be very far from claiming it for the County of Dundas.

We have endeavored to give an outline of its features in different lights, not as they *ought* to be, but as they really *are*, and we are fully assured that in every light in which it can be viewed, there is abundant room for improvement.

We should like to compare statistics with any other county of similar population, in order that from them we might learn wherein we are most deficient. In prosecuting our enquiries, various improvements and amendments have come under notice, and we conclude this Report by here submitting a few of them.

As farmers we have much yet to do and to learn before we reap the full benefit of the healthy climate, moderately fertile soil, and other physical advantages which a bountiful Providence has conferred upon the County of Dundas.

Were *less* attention manifested to increasing the extent of our farms and the number of our stock, and *more* to thoroughly cultivating the former and taking good care of the latter, we should not only secure a vastly increased revenue from our farms, but we should do this a great deal more easily to ourselves, and at a much less expenditure of labor, &c.

We have yet to learn the fundamental and the most important of all improvements connected with farming: thorough under-draining. The naturally level nature of our county particularly calls for it. Did it pay in no other way it certainly would lengthen the time for performing agricultural operations at least two weeks later in fall, and the same earlier in spring; and where our seasons are so short, even a few days become of great importance. Many of our richest lands cannot be touched (because damp) until the end of May; if drained, we should have them disposed of by the first of May.

We would strongly recommend the farmers of Dundas to improve their breed of cattle. This might be done according to the means within their reach; our opinion is that the cross between Durham and Ayrshire is peculiarly suitable for our purposes.

The sooner we improve our breed of horses the better it will be for us. $15,000 worth of *the best* are annually sold, and we shall soon have nothing left but the dregs.

As a community, too much attention cannot be given to the improvement of roads. Much of the statute labor of the County is lost, from want of proper management.

Agricultural societies should hold frequent meetings, especially in winter, for the express purpose of mentally receiving and imparting useful information. The "*Canadian Agriculturist*" should be in every farmer's hand.

Each County Agricultural Society should devote yearly a portion of its funds in importing improved breeds of horses, cattle, or sheep, and thus place these within reach of every member of the society.

We believe that the source of all our delinquencies and deficiencies is to be traced to one of two prominent traits: first the love of money, and secondly the love of *whiskey!* The inordinate love of money will, in the natural course of events, work its own cure

and men will discover that money in itself, is of no value further than the amount of good which by its agency it enables them to accomplish. Even now we find enterprising young farmers, wisely expending the accumulated dollars of their fathers in permanently improving their farms. While thus benefitting themselves they become public benefactors; and the habit acquired will not stop at our own door, but will lead us on in the path of philanthropy.

We would very respectfully suggest to the Board of Agriculture, that a tase for *draining* might be imparted to the farmers of Canada, if the services of some duly qualified person of practical experience were directed under the auspices of your Board to deliver at least one *lecture* before each County Society in Upper Canada, accompanied with specimens of the tiles and draining tools; giving information in respect to the *cost* of draining, of tiles, and of tools, and if need be, taking orders for tiles to be delivered there.

We would further respectfully state our conviction that the sub-division of the Legislative grants to township societies is productive of no good, but is rather a squandering of public money, and therefore should be discontinued. The improvements to agriculture, which the public have a right to expect, will more naturally flow through the channel of the County Society, if sufficient means are placed at their disposal to enable them to import *good stock*, encourage literary and scientific attainments among practical farmers, and generally by liberal premiums to reward merit, and engender a spirit of generous emulation and enterprize amongst all classes.

Editorial Notices.

Observations in favor of the Design of a Colonial Statistical Society, or Colonial Library in London. By A. C. Hope, Solicitor, Cornhill. We are in receipt of a copy of this pamphlet. It was written on the occasion of the approach of the Statistical Congress in London. The object of the writer is to advocate the formation of a Society, or of some organization, for the purpose of collecting and rendering available to the inhabitants of England correct and full information in regard to the condition and resources of the numerous Colonies of the Empire; a kind of information that is at present very difficult to be obtained. We should be certainly glad to see some such project carried out. The writer is a brother of the Rev. Mr. Hope, lately editor of the *Old Countryman*, in this city.

Blackwood's Magazine for August, 1860. The Contents of this number are as follows:—National Defences and Volunteers; Lord Macaulay and Dundee; The Pursuit of Tantia Topee; The Great Earthquake at Lisbon; Norman Sinclair, an Autobiography, part VII; Wycliffe and the Huguenots; Domine, Quo Vadis? The Transition State of our Indian Empire.

All the Reviews and Blackwood's Magazine may be obtained at H. Rowsell's, Toronto.

Premium List, California State Agricultural Society. We have to thank O. C. Wheeler, Esq., Secretary of the Society, for copies of this list. The exhibition is to take place on the 19th to 26th September at Sacramento. The California Society appears to be flourishing, and exerting itself to improve the Agricultural and Industrial pursuits of the State.

The London Quarterly Review for July.—The following is an abstract of the Contents of the present number: I. The Missing Link and the London Poor; II. Joseph Scaliger; III. Workmen's Earnings and Savings; IV. The Cape and South Africa; V. Ary Scheffer; VI. Stonehenge; VII. Darwin's Origin of Species; VIII. The Conservative Reaction. The character of this Review is so well understood that it is almost unnecessary to say a word in its favor. Some of the articles in the present number will be found especially interesting, not only to the politician and the grave philosopher, but to every reader of cultivated taste, feminine or masculine. We hope to see these valuable re-publications attain a largely increased circulation in this Province, and displace much of the worthless rubbish under the name of light literature now offered to the public.

This number commences a volume. Price of one Review, $3 a year. Price of the four Reviews, $8. "Blackwood" and the four Reviews, $10.

Transactions of the New York State Agricultural Society for 1858. We are indebted to the politeness of the Secretary, B. P. Johnson, Esq., Albany, for a copy of this volume. It contains, as usual, a large amount of valuable and interesting matter, some of which we shall be glad to be able to notice more fully on a future occasion.

Wisconsin State Show.—We have received Prize List. &c., of the Tenth Annual Exhibition of the Wisconsin State Agricultural Society, which is to be held at the city of Madison, on the 24th to 29th inst. Wisconsin is making very rapid progress in Agriculture; the scenery in the vicitnity of the Show grounds is beautiful; and we may safely promise any of our readers who may find it convenient to visit that part of the world, an interesting exhibition and a cordial welcome from the officers and members of the Society.

In common engineering practice, the combustion of a pound of coal imparts to the water in a steam boiler about 10,000 units of heat, which is equal to the evaporation of 8 lbs. of water of ordinary temperature. In the laboratory 14 lbs. of water have been evaporated with one pound of coal.

The population of the world is now estimated at 1,279,000,000, viz.: Asia, 755,000,000; Europe, 272,000,000; Africa, 200,000,000; America, 50,000,000; Australia, 2,000,000.

Markets.

TORONTO MARKETS.

Wednesday, Aug. 29, 1860.

The supply to-day was about the same as yesterday. The quality of the Fall Wheat is getting better every day—very much improved. One load to-day brought $1 27 per bushel; several loads brought $1 25, and the average of the entire sales was about $1 23. The range for a prime article was from $1 15 to $1 25; and for common to fair $1 08 to $1 14. On the Grand Trunk R. R. good Fall wheat sells at from $1 17 to $1 20 per bushel. Spring wheat is still poorly supplied. There were only a few loads on market to-day, which brought from $1 05 to $1 10 per bushel. Of barley about 750 bushels realized from 62 to 66c; the average being 64c. Oats are in small supply at from 30 to 32c per bushel. Peas also in small offering; one load sold at 60c per bushel. Flour—there is still little doing, and quotations are as follows:—No. 1 Superfine, $5 15 to $5 20; Fancy $5 30 to $5 40; Extra $5 55 to $5 85; Extra Superior $6 to $6 30 per brl. Hay $9 to $14 per ton. Straw $5 to $7 per ton.

PROVINCIAL EXHIBITION,

TO BE HELD AT

HAMILTON,

ON THE

18th, 19th, 20th & 21st SEPTEMBER, 1860.

Entries of articles for Exhibition, except of Horticultural Products, Ladies' Work and Foreign Products, must be forwarded to the Secretary's Office, Toronto, on or before September 1st.

Horticultural Products, &c., may be entered till the evening of Monday, 17th, when the books will be closed.

Entries, as above stated, will be received at Toronto, till the evening of Friday, September 14th, and afterwards at Hamilton.

Prize Lists and Printed forms of Entry, containing full information, may be obtained of the Secretaries of Agricultural Societies, or Mechanics' Institutes, throughout the Province.

Articles for Exhibition must be placed in the Crystal Palace, or on the Grounds, on Monday, 17th, except Live Stock, which must be there not later than Tuesday, at noon.

Exhibitors must themselves provide for the forwarding of their articles, and placing them in the grounds.

HUGH C. THOMSON,
Secretary Board of Agriculture.

Board of Agriculture Office,
Toronto, August 24, 1860.

Ayrshire Cattle.—Patrick R. Wright, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale are liberal.

Full Pedigree of all animals—U. C. Stock Register.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten orders and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, SEPTEMBER 15, 1860. No. 18.

Editorial Correspondence.

[No. 6.]

BRIDGWORTH, SALOP, August 15, 1860.

THE EXHIBITION OF THE HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND AT DUMFRIES.

It is not till now, in one of the most picturesque and quiet parts of England, that I could find time or opportunity of putting some thoughts on paper relative to the great Scottish Agricultural Show, that was commenced in Dumfries on the 1st instant. The weather, (a most important element in these matters) fortunately proved favorable; a high and dry piece of ground, consisting of upwards of twenty acres, was fenced in, and whether in regard to the quantity and quality of materials, or the amount of visitors, the Exhibition must be regarded as a great success. Dumfries is situated in a fine agricultural district, occupying the south-west corner of Scotland, and therefore not so favorably located for attracting such large numbers as places more central, as Edinburgh or Glasgow. The Society has held four exhibitions in this ancient town; the first in 1830, when the entries of stock, implements, dairy produce, &c., amounted to only 524. In 1837, the number of entries was 851; but in 1845 it rose to 1303; and in 1860 reached the magnitude of 2,398! The reader will gain a clear idea of the extent of the show, and of the proportions of its different departments from the following analysis founded on the published catalogues.

In the sections of the Polled Galloway, there were 80 entries; Polled Angus or Aberdeen, 26; Shorthorns, 71; Ayrshire, 76; Highland, 12; with about 20 specimens of fat cattle of different breeds. The class of Horses amounted to 158, chiefly for agricultural purposes. Cheviot sheep, 83; Black-faced, 15; Leicester, 76; Long-woolled other than Leicester, 30; Southdown, 13; besides a few extras. Swine, 41; Poultry, 72; and Butter and Cheese, 195. The number of agricultural implements and machines for competition was 911; besides a large amount of duplicates on sale. By means of the catalogues, visitors could readily ascertain the exact age of the animals, the names and address of their breeders and owners; and in the case of implements to the name of the maker was added the price, and sometimes other particulars of interest to the public.

The show of stock was considered not below the average of former years either in point of number or quality. In every department were to be found a number of animals of superior excellence, and in some respects the exhibition was considered as superior even to any of its predecessors. Shorthorns were well represented, and if one missed such rare and finely bred animals as Col. Townley exhibited at the English Show at Canterbury, the general impression made by a careful examination of the class, could not be otherwise than favorable. In aged bulls the competition was restricted to ten animals, several of them decidedly good; but the animal which obtained the first premium was defective in the loins, but of large size and gen-

erally of good proportions, and was considered by some as having not many decided claims to the honor awarded him. Some two years old bulls possessed excellent points, and will no doubt get superior stock, but the yearlings appeared somewhat deficient in several characteristics of superior quality. The classes of cows and heifers contained some excellent animals, and Mr. Douglas was successful in obtaining the gold medal and several first prizes.

Of Herefords and Devons I did not observe a single specimen; these breeds so numerous and of such importance in the south, are but little, if at all cultivated in Scotland. The native Galloways formed a marked characteristic of the show, and to me were particularly interesting. The number was extensive, and although there were in this class several animals of inferior merit, and ought not perhaps to have been shown, the greater part were quite superior, fine and beautiful looking. Mr. Beattie, of Annan, had an aged bull that obtained the first prize, was universally admired, and many good judges considered him among the first, if not *the* first animal of his class ever before shown. The cows and heifers were generally good, with obvious tendency to thrive and fatten. This breed has now been fairly introduced into Canada, and from all I can learn of it in its native habitation, we have every inducement to persevere. The Galloways soon reach a medium size, are hardy, yield a good supply of milk, readily fatten, and afford meat of first rate quality. The show of Polled Angus or Aberdeen, was not extensive, but there were some very superior specimens. This breed is very similar in appearance to the Galloway, and considerable observation and experience is often required to distinguish between them. Their hair is generally finer, bone fine and heads elegantly formed. Like the Galloways, from which they have in great measure sprung, they are readily fattened, having soft and pliant skins, and make beef of the first quality. Indeed these classes of the Scottish breeds, so peculiarly adapted to hilly and exposed situations, will almost command an additional penny a pound in the London markets over the larger animals, such as the Durhams, Herefords, &c. In the Highland cattle there was a lack of competition in consequence, I presume, of the locality of the show being so far south, but what few specimens were present were considered good representatives of their class. The Ayrshire cattle, considering the show was held in the native district of that celebrated breed, was not so numerous nor so decidedly superior as one might have anticipated. I heard it stated that this department was not equal to what it was at Edinburgh last year. Many of the aged bulls and cows possessed great merit, and evinced a high state of breeding; but the young stock generally did not appear to maintain the same high standing. The extraordinarily severe winter and late spring experienced throughout the British Islands, with the consequent attendant of scarce and dear provender, must have been particularly injurious to all kinds of young stock; and this circumstance will account, in part at least, for what I observed at all the shows in the United Kingdom, and likewise in France; the comparatively inferior condition of all the younger branches of live stock.

In Horses the Exhibition occupied a very high position, being chiefly confined to the purely agricultural class, and they were well placed and arranged to admit of close inspection. The Clydesdale seem to be the popular breed, and embraced some specimens which for compactness and elegance of form I have never seen equalled. From the awards made, I should consider that quickness of motion combined with compactness of form, rather than mere size, constituted the leading points in the estimation of the judges. Some of the mares were very superior, and the colts generally excellent. The progeny derived from strong and large stallions was decidedly superior to that from lighter horses. A few Shetland and Iceland ponies gave a striking and agreeable variety to this department of the exhibition. Some of the horses, as is always the case on similar occasions, were decidedly inferior. I saw but one pure Cleveland, a fair looking stallion; and the Suffolk, I believe, was wholly unrepresented.

The display of sheep, especially when the character of the late winter and spring is considered, must be regarded as both extensive and good. The Leicesters were on the whole superior; and although this breed is only suited to the low rich lands of Scotland, and cannot travel far in search of food, they are now much and advantageously used in crossing with the native breeds. There were a few good Cotswolds, and but a small number of Southdowns, the best specimens of the latter being supplied from the

Duke of Richmond's flock, in Aberdeenshire. It was the Cheviots and Black-faced sheep that constituted the national characteristic of this department of the show, and presented to me the greatest novelty and interest, and it was in these breeds especially the falling off was most to be expected from the severity of the late seasons. But these noble races, as they appeared on the Dumfries show ground, the former occupying in practical management moderately sized hills, and the latter covering the sides and tops of the highest ranges, evinced little if any indications of want of food, or that any desolating blasts and snow storms had impeded their growth or affected injuriously their plump and beautiful forms. I hope to say more respecting the mountain sheep of Scotland in a future communication.

In Swine the show was similar to those of Canterbury and Cork; some of the large breeds being prodigious specimens, and many of the smaller kind being particularly handsome. The Poultry, though not very varied or extensive, were, on the whole, particularly good; and the display of cheese and butter was very extensive and, as I was assured, of excellent quality.

Of Implements and Machines I have no space in this letter to say anything. I am not aware that the collection contained any thing particularly new or important, or what might not be seen at similar exhibitions in the United Kingdom. Among the thousand articles entered for competition, however, there were many of superior construction and improved adaptation to the wants of the farmer, of which more hereafter.

I had long indulged the pleasing hope of some day being able to visit the show of the old Highland Society, and now that I have done so, I must say that my most sanguine expectations have been fully realised.

I am glad to hear such continued good accounts of the harvest in Canada, and trust that our farmers will reap remunerating crops, and that a new epoch of prosperity has fairly commenced. The weather in the United Kingdom continues cold and wet to a degree almost unparalleled within living memory. A large portion of hay has been damaged or actually spoiled, and most of the grain crops in the later districts are as green as they were a month ago. The British farmer's prospects are truly gloomy, and there are not as yet any indications of improved and settled weather.

G. B.

The Highland and Agricultural Society.

We notice from the Dumfries and Galloway *Courier* that Professor Buckland was present at the Banquet given on the occasion of the late meeting of this distinguished Society at Dumfries, Scotland. We take the following extract from the report:—

Bailie Mundell proposed "The Strangers," coupled with the health of Professor Buckland from Canada.

Band—"Will ye no' come back again?"

Professor Buckland returned his most grateful thanks for the toast. He stated that he was the first who was appointed to the chair of agriculture in a colonial university; and that he had been actively engaged for the last thirteen years in originating and maturing an exhibition, however inferior, yet somewhat analagous in its general character to this remarkable society. He had, after an absence of thirteen years from the old country, resolved to employ what in collegiate phrase they termed the long vacation, to visit the principal national shows in the kingdom. He had attended the National Association in Paris, and after that the Royal Show at Canterbury, and then crossed the Channel to go to the Great Show at Cork; and last, though not least, he had now arrived to witness the proceedings of the Highland Society. (Applause.) His object of course was to pick up hints and to collect such information as might be serviceable to his adopted country; and he would carry home with him in a few weeks the intelligence that he had been at the festive board of the old Society of Scotland, the precursor, and the parent, he believed, of all agricultural societies in the United Kingdom. (Cheers.) Although he was personally a stranger to most of them, having never visited Scotland before, yet he assured them that the Highland Society and its proceedings, its elaborate reports and its experimental researches, were by no means strangers to him. These materials he had employed in Canada, not only in his lecture-room, but in his addresses throughout various sections of the country; and it afforded him the greatest pleasure to have an opportunity of visiting this meeting of this venerable Society. He could only say further that he hoped to have the honour of meeting the heir-presumptive of the crown of these realms, who would inaugurate the exhibition of the Agricultural Association in Upper Canada at the end of September, and he should tell the members of that Society—a goodly number of whom were Scotchmen—that the Highland Society, venerable in age, was as active and as useful as ever. He had witnessed

in the show yard to-day what would be of great advantage to him, especially in their arrangements, and the manner in which the machinery of the Association appeared to be conducted. (Cheers.)

Progress: What is it? An Example.

"Bad farming is the rule, and good farming the exception."

Such is the bold, straightforward, and uncompromising language used by Mr. Mechi, with reference to British agriculture; and, however startling, by its very plainness, it may be so to some, and however much it may wound the vanity or sensitive feelings of others, we feel, "where'er we take our walks abroad," that its truth is indisputable. If, indeed, we give ourselves up to the guidance of some orators whose fervid eloquence has frequently enlivened the doings at certain rural re-unions, we might be inclined to question the truth of the principle laid down by the much abused owner of Tiptree Hall, and suspect that he could only look on such matters through the dim medium of a city fog. But when these are scanned by the practised eye, we are compelled to admit, in very bitterness of heart, that although the nineteenth century is fast advancing to a close, although we flatter ourselves that we are so much superior to our forefathers in point of knowledge, although we even possess advantages of which they never dreamt, yet, the words we have quoted are substantially correct, and that in very deed "bad farming is the rule, and good farming the exception."

If any one doubts the truth of this fact—for fact it is, let him, when he next travels fifty miles in any direction—let him endeavour to reckon up the numerous cases which come under his notice of undrained fields; of crops struggling for existence amongst a dense mass of weeds; of waste, from the occupation of the land by enormous, and in many cases useless, fences; of wasted labour from insufficient power; of wasted energy through insufficient skill, let him reckon up these and other things which will force themselves upon him, and against these set down the few and far between cases where the reverse of all this is to be seen; and before he has drawn to the end of his journey, if he is at all capable of forming an opinion on the subject, he will have undoubtedly become a convert to Mr. Mechi's doctrine.

There are many we know who look upon such opinions as being in the highest degree heterodox. They have got a parrot-like cry about "progress," which they harp upon, much to their own delight, and which tends in no slight degree to perpetuate what, in but too many cases, is a pure delusion; and not only does it do this, but it actually prevents that "progress" of which they talk in such resonant terms, but of the real nature of which they know as little as they do of the domestic habits of the people of the moon. Were we to rely upon all they say about the matter, we would frequently find, on actual investigation, that "progress" was sometimes crab-like, and that "advancement" meant a retrogressive movement. We hear them shouting "Excelsior," whilst all the time they are slipping down hill with fearful rapidity; and at last, when fairly brought to a stand, solely in consequence of their own doings, instead of putting their shoulder to the wheel, their cries to the Hercules of the government, or some other power, for assistance to help them out of the slough of their own making are both loud and long.

It is a pithy and true maxim that "Providence helps those who help themselves," and its truth is, perhaps, as much exemplified in the prosecution of rural improvement as in anything else. We find real progress illustrated in certain cases, in a very unostentatious manner, and to an extent of which those whose talking ends only in talk have no idea. These are, indeed, the bright spots, the exceptions, which, however, are sufficient to induce a hope that ultimately a similar state of matters may become the rule, and without which, indeed, even the most hopeful would despair. But yet their very existence tells only too plainly of the wide gulf which exists between them and all around. The contrast which they present is, indeed, too striking to permit us to regard them with unmixed feelings. We see in them what *might* be the case, if right views were entertained by all who are concerned in the matter; but when we look beyond them we see what actually *is* the case, and which must inevitably remain so, so long as ignorance and prejudice unite to stop the way. We say ignorance and prejudice, and it is best to give such things their right name. We know there are people who would endeavour to gloss over these matters, and who would not only try to hide their real nature under a mass of polished verbiage, but who would, at the same time, ridicule those who are anxious that the true state of the case should be thoroughly known, in order that it may be the more speedily and the more effectually remedied; but we are not inclined to invest what we consider serious evils with a false glitter, which only serves to protract the evil. Progress will be best ensured when we address ourselves with earnest determination to the rectification of existing errors, and by directing public opinion so as to result in a right course of action. In carrying out this there is much opposition to be encountered—opposition arising not only from direct hostility, but from what is still harder to overcome, from pretended friends and from utter indifference.—*Irish Farmer's Gazette.*

Deep Tillage.

Mr. Pringle of Dublin, Ireland, recently read a paper before the Agricultural Society, on deep

tillage, and the use of the subsoil plough, from which we make the following extract:

"Deep cultivation is a comparative term, and what is so in one case may be the reverse in another. The common plough in ordinary ploughing does not in most cases turn a furrow exceeding 7 inches in depth, and in many cases not above 4 or 5 inches. Whatever may have been the depth which has hitherto been the rule in any particular instance, if we go deeper—even an inch or two—it is, to a certain extent, an example of deep culture, and as such will be found productive of certain results. But this is still only comparative, and of a shallow and superficial kind, compared with a moving and mixing of the soil to the depth of 12, 15, 18, 20, and even 24 inches. It is frequently astonishing, however, where circumstances are otherwise favorable, to those who are ignorant of the stores of plant food which a little deeper ploughing renders available, in cases where the surface soil had for many years been only lightly tilled, to witness the results of breaking into and bringing up that really virgin soil which is found in such cases under the thin layers of exhausted surface soil. In fact, it appears almost like magic, and not a little difficulty will sometimes be experienced in convincing such people as to what is the real cause of the increased fertility which so much surprises them. Down to a very recent period the use of the spade or fork was considered the most efficient mode of deepening and mixing the soil, whenever it was thought proper to go beyond that depth which could be effected by the plough. During the famine years, and prior to that period, this mode of deepening the soil was strongly insisted upon as affording remunerative employment for laborers in our rural districts. Since that period, however, it has fallen into disuse, chiefly in consequence, perhaps, of the scarcity of laborers, as well as other reasons to which it is not necessary to allude. At the time referred to I had considerable experience in this mode of improvement, and am perfectly satisfied as to its beneficial operation, when properly carried out. We may still, however, find cases where it is practised, and in such the steel fork has generally superseded the spade, the former being lighter and altogether better adapted for the purpose. Without entering into particulars—which my limits will not permit—I may be permitted, merely by way of illustration, to say that Mr. Brady has, I believe, gradually increased the depth of soil at Merino from seven inches to at least 18 or 20 inches, chiefly by the use of the spade or fork. Mr. Niven also uses the fork rather extensively in deep cultivation, trenching the land two feet deep by means of it, at a cost per Irish acre, by day's wages of £7 13s. ($38.32); and although the expense appears to be large, yet he finds it repaid in the first crop. The introduction, by the late Mr. Smith, of Deanston, of the subsoil plough, as a follower of the thorough drain was an event of much importance, not only from the effects produced by the use of this implement when employed in breaking up the indurated subsoil, but also from the enlarged and more correct views which it was the means of imparting to many on the subject of deep culture. Its application by some, as a substitute for, instead of a follower of the thorough drain militated against it in certain cases; but it is unquestionably a valuable implement when properly applied. Still, with all my predilections for the Deanston subsoil plough, arising from a rather extensive experience of its use, I do not consider it a perfect implement. It rips up the under soil, and gives additional depth; but it does not effect this in such a perfectly uniform and complete manner as all the requirements of deep culture demand. Some, indeed, allege that the effects of subsoiling are not lasting; but I am not of that opinion. I have, no doubt, met with cases where the results apparently favored such views; but in tracing the history of those cases—which are always in connection with stiff, cold clays—it was evident that the subsoil plough had followed the drain too closely and without giving the latter proper time to act. Where the latter point was attended to, however, I have seen, even on very obdurate clays, that the effect of subsoiling by the Deanston plough were perfectly visible at least fifteen or twenty years after the work had been done. Various forms of subsoilers have been introduced, and many of these possess great merit. The most perfect implement, however, or rather combination of implements, for effecting deep and uniform culture is to be found in the Tweeddale plough and the Tweeddale subsoil-trench-plough. These were invented by the Marquis of Tweeddale, and first used by him in the improvement of his farm on the Yester estate. The Tweeddale plough, at first sight, appears to be a heavy and cumbersome implement; but although it turns a furrow 15 to 16 ins. deep, and 14 inches wide, it is held by the ploughman with as much ease as any common swing plough turning a furrow six or seven inches in depth. This arises from the structure of the mould board, which to use Mr. Stephens' description, "instead of pressing against the furrow-slice along its entire length, gets quit of it at once by its convex breast, and causes it to slip along in a straight line till it reaches near its ear, when the furrow-slice assumes its proper position by its own graving. Friction of the furrow-slice is thus practically avoided." In another place he says, "The furrow-slice, in place of being turned over in an entire form, as by our fine working plough, is only so far turned, and at the same time broken, as serves to present the soil in the best possible state to the ameliorating effects of atmospheric influence. In this respect, the Tweeddale plough stands unequalled; and since the extinction of the old Scottish wooden plough, no implement has approached the point to which this has attained, for enlarging the extent of surface

exposed to the atmosphere." It is scarcely possible, without actual field demonstration, to convey a perfectly correct idea of the really beautiful manner in which those implements act in loosening and commixing the soil, to a depth of from 20 to 24 inches."

Standard of Points in Shorthorns.

The contradictory judging which is frequently witnessed at our shows in the case of short-horns gives rise to considerable bewilderment, not only to those who are but slightly versant in such matters, but also to those who ought and do "know a thing or two." At one meeting we find a certain style of animals, or those possessing certain prominent points, exalted to the highest position; whilst at another show, and with another set of judges, a very different class of animals are the winners of honours; the successful on the one occasion being nowhere on the next. Judges, no doubt, have their predilections for a particular style, or for certain points, but this difference as to the value of such matters is, as we have said, not only the cause of great puzzlement to onlookers, but sufficiently decided at times to cause the latter to doubt whether there is anything more in judging than an almost random selection.

The past show season, to go no further back, has afforded numerous instances of the uncertainty which characterizes the awards frequently made, and that not only on our side of the Channel, but also in England and Scotland. Whatever, therefore, would tend to establish some definite criterion by which animals are to be judged would, we think, be of great utility, particularly as it appears either that societies are chary in establishing it as part of the duty of judges to give some reasons for their awards, or that judges are equally chary in volunteering such information. There are, no doubt, certain animals which possess such a perfect combination of points that there can be no mistake about the matter; but the case is different where the competition becomes closer.

At a recent meeting of the Newcastle-upon-Tyne Farmer's Club, a paper was read by Mr. Chrisp on shorthorns, in the course of which he gave a scale of points and their relative value. The following is an extract from his paper, as well as some of the opinions which were elicited from other members:—

"I must attempt to sketch out an ideal shorthorn, possessing all those perfect points which breeders prize so much. Although most butchers like a large carcase, which brings down the scale, yet they also prize the greatest quantity of beef on the best joints. Where these are not to be had together, the latter is preferred, as of most value in the market. Therefore, great size is discarded, as leading to overgrown, ungainly animals, difficult to fatten. On the other hand, little, dwarfed, stunted animals are equally to be avoided in breeding, these appearing to have lost that healthy constitutional stamina which in the best short-horns is so highly prized. These should be weeded out, as they occasionally occur in herds from cross or close breeding, as well as from food or climate, or even local causes. The short-horn bull must have a symmetrical form, of medium size; body (including quarters and neck) rather long than short; bones fine, legs short; all choice parts well covered with gelatinous flesh and fat mixed, not patchy; skin medium thickness, mellow to touch; hair fine, silky, thick-set, long in winter, not wiry; head well set on to neck; scalp wide; face dished a little, rather long than short, fine muzzle, open nostrils, horns medium size, fine, clear, and waxy, free from black stains; the eyes prominent, bright, but placid; the neck a little elongated and arched, well set on to the shoulders, which ought to slope backwards, be broad and level, deep, with fine shoulder points; brisket deep, prominent and broad between the fore legs; ribs round, back straight, quarters long, full-fleshed thighs, deep and full at twist, arms full above, fine at knee, flanks deep and full, tail well set on, at right angles with back, and not thick or coarse; colours, roan, red, white, or flecked—black, or shadings of black on skin, hair, horns, or hoofs objectionable. Altogether, the animal ought to have a gay and "stylish" appearance in gait as well as in form, which breeders consider betokening high blood, and which most animals of the short-horn tribe have more or less. The same characters will, with allowances for the more feminine appearance, answer for the cow, though I should add full development of udder, not fleshy, well-set teats, good milk veins, and perhaps hereditary character for good milking qualities. The following points are the work of a young friend who has kindly helped me. Perhaps the best way to treat them is for a few of our members to take the pleasant labour of trying the prize animals by these rules at our local shows, and reporting the result:—

	No. of points.	What constitutes goodness.
Head	4	Moderate length, wide, and rather dished, with clear horns, and flesh-coloured nose—not black.
Neck	1	Being well sprung from shoulders, and slightly arched.
Neck vein	2	Prominent and full.
Shoulder and crops	6	Former being well thrown back and wide at top, "points" well covered, and not prominent. Crops being very full.
Breast	2	Coming well forward, wide and full.
Back	3	Breadth, and levelness.

Loin	4	Breadth, and being well covered, not low.
Hocks	2	Breadth, and being at right angles with back bone.
Rumps	2	Not being drooped.
Quarter	2	Length, levelness, and being well filled up.
Thigh	2	Length and fineness, and being well beefed inwards.
Twists	3	Coming well down.
Hock	1	Being well bent, and not turned in.
Flank	3	Full and coming well forward.
Back ribs	3	Well sprung from back and round.
Fore ribs	3	Round, and coming well down.
Quality and hair	4	Skin not being too thin but soft and mellow, hair long and silky.
Colour	1	Roans and reds.
Udder and milk vessel	3	Well formed teats and udder, large milk veins.

"Mr. Atkinson said he agreed with most of the points which Mr. Chrisp had named in the paper, but thought too much stress was laid on a long heed. Nor was he in favour of a very long breast; for it indicated a deficiency of weight.

"Mr. Hedley suggested that Mr. Chrisp should give a few points to elegance and style. No matter how well an animal might be formed, if it had a lowering gait it never looked well.

"Mr. Chrisp thought the shape should give style, but had no objection to voting a few points for that. He did not advocate a long head, but a short head was also objectionable.

"The discussion then ended, to be resumed at some future day, when the matter has been more matured."

It will be observed that Mr. Chrisp merely offers his scale as a suggestion, and whilst we think that sufficient comparative prominence has not been given to certain of the points enumerated, still it brings out the matter in such a manner as to deserve attention. We, therefore, hope that some of our readers who are well qualified to give an opinion on the subject will favour us with their views, and thus, perhaps, the points of short-horns may be reduced to something like a correct standard of estimation. It is certainly an interesting, as well as an important subject.—*Irish Farmer's Gazette.*

Pleuro Pneumonia.

[From Transactions of New York State Agricultural Society.]

The appearance of this alarming disease, in a most virulent form, in this country, has excited much interest among our farmers; and it is desirable that all the information which may tend to furnish facts in relation to the disease, its origin, and treatment, should be given to the public. This disease has prevailed in Europe for many years, often causing immense losses—and although various remedies have been resorted to, some apparently successful in one locality, yet failing in another—there has, as yet, been found no certain remedy for the disease, so far as we have information. Destruction of the animals affected, as soon as the disease makes its appearance, has generally, we believe, arrested its progress. Few, however, are familiar with the symptoms of the disease, and when it has made much progress, it is very difficult to arrest it.

The annexed article, read before an Agricultural Society in England, giving, in a plain and familiar manner, a brief history of the disease there, from 1842 to the present time, we have thought would be useful to our farmers, and would lead them to take measures to guard against the spread of the disease, should it make its appearance in their vicinity. It contains many interesting facts, of the origin and progress of the disease—the symptoms which usualy accompany it, and the various remedies which have been resorted to. Much interest is manifested in England and upon the Continent, in relation to the best means of arresting this disease. It is to be hoped, that investigations which are being made abroad as well as in this country, may lead to some discoveries which may prove advantageous. J.

PLEURO-PNEUMONIA.

By Mr. PALLIN, of Tarvin, Cheshire, England.

The "Pleuro-pneumonia" made its appearance in this county, in its formidable character, about the year 1842, and at that time carried off the greatest portion of many valuable stocks of dairy cows. In consequence of such a serious visitation, cattle clubs were formed in different parts of the country, for the protection of farmers from that disease alone; and two other societies were established in London for the same object. So alarming did it become, in a very few years, that the Royal Agricultural Society of England, in 1847, offered a prize of £50 for the best essay on "Pleuro-pneumonia." Several essays were sent in, and the prize was awarded, in 1848, to the author of an apparently clever, well-written essay; but, it is much to be regretted, it threw very little light upon the subject, and I greatly fear that the country, after an experience of eighteen years, is quite as ignorant of the cause or the cure as it was at that time. If the disease usually made its appearance at any particular time of the year, or under any visible peculiar circumstances, we might possibly form some idea at least as to the cause; but we hear of its presenting itself at every period of the year, without exception, and under almost every circumstance, in all kinds of seasons and situations, where cattle are in high condition, and where they are in low condition; where they

are well managed, and where they are badly managed; in fine, dry weather, in very hot weather, in cold frosty weather, in mild wet weather; upon every description of land, from the dryest sand to the wettest clay, (and I believe if there is an exception, it is in the hilly districts of Wales, Scotland, Derbyshire, &c.,) and this, too, where farmers have been most cautious in introducing fresh cattle into their stock.

The symptoms, too, vary considerably; an altered gait in walking, as if from stiffness of the limbs, is frequently one of the first indications of the disease; sometimes a peculiar and unmistakeable grunt, at others a failing of the milk, soreness of the udder, and tenderness of the spine, quickness of breathing, short cough, horns alternately hot and cold, suspension of rumination, costiveness, partial loss of appetite, which gradually diminishes until it is entirely gone (and yet I have known instances where the appetite has continued until the end, when the animal has dropped down dead whilst eating.) It is a much more serious business when the disease enters a dairy stock than a feeding one, especially if, as is generally supposed, the flesh of the animal is not unwholesome, but fit for human food, for although a milking cow may be of great value to her owner for dairy purposes, she might be worth little or nothing for the slaughter-houses; and there is also the danger, if not the certainty, of abortion during six or eight months of the year, i. e., in every decided case of "Pleuro," either from the effects of medicine or the disease itself; but as regards feeding animals, assuming that the flesh is not unwholesome, the loss would be trifling, as compared with dairy cows, provided the animals were slaughtered immediately on being taken.

I believe the "Pleuro" made its appearance in England previous to the year 1842; for, to the best of my recollection, it broke out in Yorkshire, and some few distant counties, before it found its way into Cheshire, and from a memorandum in my own possession, I find that previously to forming a cattle club in the parish of Tarvin, for protection against that disease, two stocks of dairy cows in the neighborhood having then been attacked, a preliminary meeting was held at the "Bull's Head Inn," Tarvin, on the 24th December, 1842, for the purpose of taking into consideration the propriety of establishing such a club; and on the 10th of January, 1843, the club was actually formed, and it continued to work remarkably well until a few of the principal members became dissatisfied because it did not protect them against all losses, but confined itself solely to the "Pleuro"; and in consequence, the club broke up, and many of its members then joined the "Mutual," or the "Agriculturist," two London offices, the latter a proprietary one, which, from want of experience and good management, soon broke up also; several other clubs and insurance companies were soon formed, and from increased experience and a better system of management, are undoubtedly working better than formerly.

As regards veterinary or medical treatment, during a period of eighteen years, we cannot expect much success until one uniform system of treatment is adopted, based upon scientific principles and a thorough knowledge of the disease from its commencement; but here we are at a loss. No one appears to know for a certainty whether the attack and one or more of the symptoms are simultaneous, or whether the disease generally lurks in the system for some time previously to the symptoms manifesting themselves; nor is it generally agreed where the disease commences, some contending that it commences in the pleura, and then spreads to the lungs; others, that it has its origin in the lungs themselves. There are also others, of considerable professional experience, who are of opinion that the disease originates in the blood, and that the first steps should be to endeavor to thin and purify the blood in the very earliest stages of the complaint. These are points which I do not pretend to determine; but having examined a great number of cattle after death, I think myself justified in stating that I have generally found the pleura much inflamed, and one division of the lung in a highly gangrenous state, and the other comparatively healthy; but in every case the appearance was such as to lead me to believe that the affected lung could not possibly be restored to a healthy state by any medicinal treatment. At the present day there are advocates for severe bleeding, as the "Sheet Anchor," and from a combination of powerful medicines down to homœopathy, in which bleeding is strictly forbidden; and, according to my own observation, about an equal number have recovered under each kind of treatment, and where they have not been treated at all, probably one in every seven or eight. Others are of opinion that the disease arises from the use of bone and our several new manures; but their opinions will also appear fallacious, when I state the fact that on many farms where the disease first appeared, neither bone or any new manure had been used; and on one farm, which was visited by it, in its most malignant form, in 1847, at least two-thirds (50 acres of its dairy pasture had been bone-manured in 1838, about nine years previously,) without a single case of "Pleuro" having manifested itself between these two periods, although the disease carried off about half the dairy stock of an adjoining farm early in 1843 (nearly five years before,) on which bone manure had not been applied at all. Many persons doubt its being infectious or contagious, but the circumstance of its spreading through a stock, when once it makes its appearance, to the annihilation generally of one-half or two-thirds of its number, leads to the inference that it is infectious, although it frequently happens that where animals are kept in close contact with diseased ones, one-third or more escape. It generally makes its appearance as an epidemic or epizootic, attack-

ing several stocks in the neighborhood about the same time, and this, I think, may be attributed to some atmospheric agency. Can anything be done to arrest its progress? There will not, I think, be a question in your minds as to its effect upon the price of animal food, and dairy produce, especially when you are informed that on an area of less than three square miles, within a short distance of Chester, upwards of one hundred and twenty dairy cows have fallen a sacrifice to the disease in the short space of about eight months; and if it progresses in this ratio for a few years, or even a few months, it must tell a fearful tale upon the stock of this country.

I think that a searching investigation should be commenced at once; but this important step cannot be taken by any private individuals, or even public body less than the government itself, or under its direction and support. It would require the greatest amount of talent and experience that could be brought to bear upon it, and there must be a very considerable pecuniary inducement offered, to bring out men of talent, eminence, and integrity, to devote so much of their valuable time as would be required in such an undertaking; stocks of cattle would have to be visited, in different parts of the kingdom, subjects would have to be purchased from infected stocks, diseased ones in their different stages of the complaint, apparently healthy ones from the same stocks—some for the purpose of being slaughtered for examination, others for experimenting upon. Perfect illustrations of the whole of the internal organs, connected in the slightest degree with the disease, showing the interior of the different vessels, as well as the exterior, would have to be given; the condition of the blood, both in diseased and apparently healthy subjects in diseased stocks, and also of undoubtedly healthy cattle, from districts where the disease had never appeared, would have to be reported upon, and the services of some of our most eminent professional men would have to be secured to assist in adjucating upon the momentous question, Can anything be done by human agency, to arrest in its progress the much-to-be-dreaded scourge "Pleuro-pneumonia" in cattle? How is this to be accomplished? Not by private individuals, not by public companies, nor by the Royal Agricultural Society of England, but by the government of the country, who might call in the aid of the Royal Society to assist, if necessary, in arranging and carrying out the scheme. As I have before said, considerable pecuniary aid would be required, to carry out the scheme satisfactorily; therefore the plan I suggest is, that government, being the bearer of the public purse, should offer three prizes for the best essays on the "Pleuro-pneumonia" in cattle, viz., one of two thousand pounds, one of one thousand, and one of five hundred—of course under certain conditions and regulations; and I fully believe that the Royal Agricultural Society would render all the assistance in its power to further the objects of the inquiry. To show the view government took of a disease amongst cattle, called the "Malignant Epidemic Murrain," about the year 1745, I quote the following passages from a valuable work upon cattle, and their diseases. After speaking of its devastation in the neighborhood of London, and some of the midland counties, it says:

"For more than twelve years it continued to lay waste the country. The number of beasts that were actually destroyed by it was not, and perhaps could not, be ascertained; but in the third year of the plague, when the government had so seriously taken up the matter as to order that every beast that exhibited the slightest marks of infection should be destroyed, a remuneration being made to the owner, no fewer than 80,000 cattle were slaughtered, besides those which died of the disease, and which formed, according to the narration of one of the commissioners, nearly double that number. In the fourth year of the plague, they were destroyed at the rate of 7,000 per month, until, from the numerous impositions that were practiced, this portion of the preventive regulations was suspended. In the year 1747, more than 40,000 cattle died in Nottinghamshire and Leicestershire, and in Cheshire 30,000 died in about half a year."

Surely, after such an example by government, upwards of a century ago, our present government cannot well refuse its aid, by the advancement of a few thousand pounds, in endeavoring to ascertain the cause and cure of a disease, not so dreadful perhaps in its character as the murrain, but fatal in its effects to a fearful extent, almost ruinous to individuals, and seriously affecting the whole community. It appears that England is not the only place where the disease exists at the present time, and I quote the following passages from a London paper of the 10th inst: "A communication was received by the Royal Agricultural Society, at its last meeting, from the Central Society of Agriculture in Belgium, requesting information on 'Pleuro-pneumonia,' and the means adopted to combat the disease, having particular regard to inoculation. A reply was ordered to be made, that inoculation was not found, in this country, to rest on any scientific basis, and as such, it has not received the sanction or support of the Society." In this country, no statistics of the number of cases of "Pleuro-pneumonia" have been kept, and consequently little is known of the number of those of inoculation. Some time ago, experiments were made upon cattle by inoculation, but I never heard of any very favorable results; and I think if the experiments had been tolerably successful, the public would not have been kept in comparative ignorance on such an important matter; and it certainly appears strange, that such a mode of treatment should have been resorted to, i. e., to introduce so malignant a disease into the system of a healthy animal, which might possibly escape the disease altogether; for I think it will bear no analogy to

the system of vaccination in the human subject, for a mild kind of disease was in the first instance introduced into the system from the cow, with admirable effect, for the purpose of arresting that dreadful disease, the small pox. Formerly, the small pox itself (until the discovery of vaccination, by Dr. Jenner,) was introduced into the system of human subjects by inoculation, and frequently lamentable consequences ensued, which I fear would be the case if inoculation was resorted to in "Pleuro." And now the question again presents itself: Can anything be done to arrest the progress of "Pleuro-pneumonia," carrying away, as it does every year, some thousands of valuable dairy and other cows? It appears to me to be worth the experiment I have presumed to suggest, and if successful, the public would be well repaid for any pecuniary assistance government may think proper to advance in the undertaking; and, if, on the contrary, it should prove unsuccessful, the country will, I think, be satisfied that everything that can be done has been done, and that we must in future look to an All-wise Creator for that comfort and support, under the infliction, which He alone is able to give.

Harvests Prospects in Britain.

From the Mark Lane Express of August 27.

London, Monday, Aug. 27, 1860.

The harvest prospects only become yet more serious and discouraging the nearer we approach to what should be so joyous a season. There has been another wet week, and we write on the third Saturday in succession under the dispiriting influence of "a regular rainy day." There has scarcely been a gleam of sunshine, and the corn for the last fortnight has no appearance of having ripened in any degree whatever. Still some has already been cut; but this, in many cases, has been more to stay the spread of disease than from the ear being really ready for the sickle. A crop gathered in such condition will of course require a deal of time to make and harden, either in the rick or the barn; and, however late harvest may be, anything like a general return of new wheat in the market will be later still. The yield, moreover, is now in almost every direction anticipated to be indifferent, while the sample, even with the most careful housing, can scarcely turn out well. Such a combination of circumstances must tell against those who cannot afford to wait, and we fear that many small farmers will be placed for some time to come in a very trying position.

Our reports from different parts of the country only go the more and more to confirm the unfavorable impression we have for some time past continued to gather. There is, too, hardly a local journal we open, but which has something like a positive despair of the harvest. Even such as still live in hope wrote before the experience of the last two days; and these two in and about town have been with the glass pointing to the too palpable fact of "much rain." In a season almost if not altogether unprecedented for the continuance of unpropitious weather, and the absolute injury already effected, it is extraordinary to remark the common tone of the country. Dispirited as people may be, there is as yet nothing like alarm apparent. The country markets yet note but little change; while Mark Lane, though for some time *gradually* advancing, has made nothing like that leap which many people have so long been prepared for. But to-day's market does at last show some sign of the unseasonable influence, and a rise of four shillings a quarter is recorded on wheat, and £3 per ton on potatoes. Had the morning opened less favorably there is little question, but this advance would have been yet greater. Still, the comparative quiet here, and the ready supply flowing in, would go to argue that we have yet more wheat in store than was imagined. It would, however, be idle to assume that we rest upon any such a prop as this. England has long ceased to think of any such self-dependence, and the reports of her own prospects are now read with hardly more interest and attention than those of other kingdoms. It is so that we must solve the enigma as to the state of the market and the continued confidence of the country. There is a comparison to be drawn between the broken promise here and that held out to us elsewhere. We are enabled to offer the material for such a review in our paper of to-day. Almost side by side with each other stand the facts and opinions of our recognized authorities both in England and America. The contrast is striking enough. Proportionately as the look-out of one is bad is the other good. It is rarely there has been so generally unfavorable a return in England, and as seldom a better one in America. We turn on from one State and statement to another with the same gratifying and welcome intelligence. This is of as late a date as August the 6th and 7th, and it nearly all echoes the abundance and the opportunity for the in-gathering. "England can get all, and more than all, she wants from the United States—if she has a very short crop, we have a very large one—average prices will rule;" while a duly appointed Commission in Wisconsin writes "that without exception the crops were better in quality than was anticipated, and the quantity of the area perfectly astonishing!" There is to be a third more than the crop of 1859, and a fifth more than in either 1858 or 1857. There must be many millions of quarters to spare, and all ready for shipment to England so soon as we only announce that we require them. Such a declaration, however, would seem to be already pretty freely accepted, as a rumor of some repute goes to say that corn for this country has been lately bought in

America at a higher rate than that it is now selling for on Mark Lane. In any case, whatever may be the actual result, an all-wise Providence directs us at once to the remedy for any evil which may afflict us; and inculcates at the same time the blessings of Peace, and how one man should learn to aid his brother. A bad harvest in England, and a bountiful one in America, must be attended with commercial relations that will conduce much to the mutual convenience and advantage of either. The returns we are enabled to offer on the prospects in France are generally more favorable than we have hitherto been led to anticipate. But these are accompanied by the suggestive commentary of the Emperor himself, who has just opened the ports to his people.

Within thirty miles of London the barley is as green as grass, and in almost every direction the wheats are more and more laid, with the clovers coming through. Still there is much yet of a good color, and though the rains have been heavy, the temperature has been rarely close or "muggy." The strong wind, indeed, which has commonly attended or followed the rain fall, must have done much to retard the spread of mildew; though, as we wrote last week, this in some districts is already lamentably prevalent. A few days more of such weather as we have had for the last month would now threaten a fearful increase of disease; and with this dread before them, some few have been hurried into making a beginning. Labor is, fortunately, by no means scarce. The high rates of last season have attracted a number of new hands, especially from Ireland, and these are as anxious to get to work as even the farmer himself can be. With a view of facilitating the business of what may most probably be a "catching" time, we have provided an article on the best means of encountering a wet harvest. This will be found to give the practice of Scotland and the north of England, where such difficulties are of more common occurrence than in the south. Many a useful hint, as we take it, may be gathered from a system perhaps somewhat slovenly in its details, but that is founded on the principle of making the best of bad weather. If markets are still to rule at an average with the supply that other countries can send us, it behoves the English agriculturist yet more to do the best by his own produce. A high price has ere now compensated for a short crop, but in these times of increased facility of communication and ready transit, the *hiss* of the steam-engine will strike an average between plenty and scarcity. It is well, too, that it should be so. Panic and famine fly like evil spirits from the presence of such a power.

The Iron Ploughs on Trial at Canterbury.

Some time ago a match for £50 a-side was made between two well-known plough manufacturers, Messrs. Ransome Sims, and Messrs. Page & Co., to be given to the one whose plough should be adjudged to have done its work best; the trial, it was also decided, to come off at Canterbury during the agricultural week. On Friday, accordingly, the ploughs made their appearance. The judges of the show were the umpires. Both the ploughs were iron, and both of improved manufacture—the champions of their respective owners. The ground to be turned up was, of course, at first a subject of discussion; but with the confidence of inexperience, the competitors were resolved that they would try on the pasture-land that had been the scene, only two days before, of the Kentish men's lamentable defeat. In vain were words of prudence whispered in the ears of these ardent competitors, and the extraordinary nature of the land pointed out to them. They would not hear of delay, or admit of doubt. That the Kent ploughs had failed, they said, was very likely, and only what everybody expected; but these improved iron implements were made of very different stuff, and, in fact, just suited the stiff, difficult soil; and the makers of them felt overjoyed at having at last got an opportunity of showing the miserable figure that poor Kent would cut, when her wretched, old-fashioned, ill-constructed plough was brought into competition with the ploughs of a more modern kind. Accordingly they got to work. Messrs. Ransomes' plough was behind-hand at starting; but Messrs. Page's plough began in good time; and its skilful, intelligent driver smiled contempt at the bare idea of its failure. All he wanted was, to find the land that he could not plough. He had four horses, however—no doubt out of a desire to flatter the prejudices of the Kentish spectators, and not but that he could do perfectly well with two. He chose a broad space between the work of the Kent ploughs, and began by turning a furrow each way in the centre, to the depth of two or three inches, leaving a piece of uncut turf in the centre, of the breadth of nine inches and a half. As he began his work, our attention was called away for five minutes; and we dared scarcely turn our sight again on the field, for fear of witnessing such splendid ploughing as would finally and for ever consign to ridicule the merits of our Kentish implement. At last, we screw our courage to take a survey of the field; but what do we see? The sward unburied; the furrow not five inches deep; the earth that had been turned up constantly falling back into the furrow; the coulter of this invaluable plough actually bent; and, lastly, the ploughman, uttering very emphatic but highly improper observations on the land, the plough, his horses, and himself. And this was the result of all his grand expectations. So far was he from beating the work of the Kent plough, that he fell very far behind it, and instead of proving, by comparison, its defects, showed only that, if it had failed, its failure was, at least, much less signal than that of Messrs. Page's modern, improved implement. Meanwhile, the other plough—that of Messrs. Ran-

somes and Sims—started off. Instead of four, the driver of this implement would only have two horses; but before long he altered his tone, and harnessed on the complete team. The result was precisely the same as in the case of his competitors. The depth never exceeded five inches; the earth returned to the furrow; the coulter was bent, and the ploughman disgusted. He and his friend retired from the field with blushing faces instead of blushing honours, and with their mouths full of complaints about the Kentish soil, rather than against the Kentish ploughs, which they had before been so ready to ridicule.—*Kentish Observer.*

The *Maidstone Journal* adds: "The iron ploughs also 'came to grief,' and cut quite as deplorable a figure as their more ponderous progenitor. Great was the exultation of the iron plough makers at the alleged failure of the old Kent plough; but it may turn out, after all, that failure was more apparent than real. The Kent farmers attribute what took place to the fact that the plough tackle was not suited to the nature of the work to be done; and not to the inefficiency of their implement. This view of the case is borne out by the fact that Simmonds' plough actually did turn the soil. The advocates of the iron ploughs at the Canterbury Show, however, would hear neither argument nor explanation, and the Kent plough had to put up with jeers and contumely. Hereupon a few spirited men of Kent determined if possible to bring the question to a fair issue, and we are glad to hear that a friendly challenge has been sent to Mr. Hornsby to try his plough upon a piece of stiff land in Mid-Kent against the old Kent plough and Spencer's improved. If Mr. Hornsby accept the challenge, public announcement will be made of the time and place of this important trial."

[Mr. Hornsby told us himself, on the hill at Canterbury, that he should like nothing better than to go to work where the Kentish ploughs were then doing so badly.—Ed. M. L. E.]—*Mark Lane, July* 23, 1860.

Liquid Manures.

Many gardeners near the large cities of Europe use all their manures in the liquid form. The manure house is a close, long building, and after being filled is closed tightly up. The floor inclines toward a cistern at the lower end outside the building, to receive the drainage which is pumped back on top the manures daily. When manures are required, the liquid from the cistern is used, and if more is required than the cistern will furnish, water is permitted to run into the cistern, and this is pumped up again on the manure heap to filter through, and to dissolve new portions of the fertilizing materials rendered soluble by age and fermentation. The following article from the *Rural Cyclopædia*, shows a different method pursued in Holland, Switzerland, and Germany.—[Ed.

Gulle.—A peculiar liquid manure, in use in some parts of Holland, in several districts of Switzerland, and in the south-west of Germany. It is a dilution of the solid and fluid excrements of cattle in winter, sometimes chemically affected by a foreign admixture, and always subjected, for a considerable time, to the putrefactive fermentation.

Gulle has been longest in use in Switzerland, particularly around the lake of Zurich; and is there prepared in trenches and tanks immediately connected with the cattle-houses. The floor on which the cattle stand is covered with planks, bricks or tiles, and has a slight inclination toward their heels. A horizontal trench, for receiving their excrements, extends from end to end of the floor, and is formed of boards, or walling, 18 inches wide and 24 inches deep; and is connected at its lower end with a covered tank of six or eight feet in depth. The trench is half filled with water; the urine runs naturally into it; part of the solid excrement falls naturally into it, and the rest is raked and washed into it several times a day; the straw litter, which has become foul with excrement, is collected twice a week, and well rinsed in the trench, with the dung-rake, and then left sufficiently long at the side of it to drip out the saturating liquid; and when the trench becomes quite, or nearly full, its contents are first thoroughly stirred up, and then let out by the sluice at the end of it into the tank. The trench is again and again, or many times over, filled and emptied in the same way, till the tank becomes full; and in large establishments, the contents of the full tank, now in a state of considerable fermentation, are run off or pumped into a larger reservoir, and there kept, from four to six weeks, till they have become thoroughly fermented. The washed litter, after having been allowed completely to drip at the edge of the trench, is carried out of the house, and built up in regular quadrangular heaps; and it soon decomposes into a dark-brown, fatty manure; but, in consequence of having been cleansed from nearly all the saline and nitrogenous principles of the dung and urine, this manure possesses, comparatively, little fertilizing power.

In the south-west of Germany, the tanks for the gulle are constructed in the fields, and supplied with water from adjacent springs; and both the urine and the dung are carried to them from the cattle-houses. The advantages of this method over the Swiss one, are the lessening of labor in carting the gulle to the fields, and, in some instances, the lessening of labor in conveying water to the farmery; and the disadvantages of it, are the increase of labor in collecting the excrements, and the dissipation of some portion of the ammoniacal principle before the excrements can be conveyed to the tank. A practice throughout the south-west of Germany, too, is to dissolve some copperas in the contents of the tank; and, though this

must damage ferruginous soils, by adding to their proportion of iron, it delivers up its sulphuric acid into combination with the ammonia of the urine, and, in consequence, very generally gives a perceptible increase to the fertilizing power of the manure.

Gulle is generally applied as a top-dressing, and is found to be peculiarly suitable for grass lands; but, on account of the labor of carriage, it can seldom be economically applied to fields or meadows at any considerable distance from the tank. A grand requisite for it is an adequate supply of water; and this requisite becomes a source of material enrichment, when the water holds a considerable quantity of matters in saline solution; or, in popular phrase, is "very soft." Gulle is conveyed from the tank to the field in liquid-manure carts; but it falls most equably and beneficially upon the soil, when made to flow from an aperture in the centre of the lower side of the barrel, and to splash upon a dispersing-board, suspended below the aperture. In pumping it out of the tank into the barrel, care ought to be used to leave behind all the undecomposed vegetable fibre laying as sediment at the bottom of the tank; for, when this is mixed with gulle used as top-dressing, it lies on the leaves of the young plants, and produces an injurious incrustation. And it ought always to be applied either in a state of comparatively great dilution, or when the soil is much moistened with rain; for, if used upon dry grass land in the concentrated form in which it is prepared, it will act in a somewhat caustic manner, and probably do more harm than good.

Dr. Sprengel, to whose treatise on manures we are indebted for the facts we have now stated, speaks very highly of gulle, and strongly recommends it to the attention of farmers. "Although," says he, "arrangements of the cattle-stalls as well as the numerous tanks, required in the preparation of the gulle, in order to preserve it for the proper period, occasion much expense, and likewise its distribution over the field much labor, these outlays are richly repaid in the advantages derived from this manure, as will be more clearly shown under the following heads:—1. The water, which is constantly kept in the trench, absorbs much of the carbonic acid given out by the cow in the act of breathing, and, consequently, the ammonia arising from the urine is not only neutralized and thus rendered less volatile, but the carbonic acid is also in itself a strong manuring substance. 2. The water in the trench serves to keep the cow-house cool during the heat of summer, and the vapor occasions a dampness in the atmosphere, which is much better for the health of the cow than a hot and dry air. Little, or perhaps none, of the ammonia, developed by the urine is lost; its escape being prevented, as my own experiments on the putrefaction of urine and water have proved, by the large quantity of water present. The absolute gain of manuring elements from this circumstance is, indeed, very considerable, and fully confirms the statement of the Swiss, that, since the time of the introduction of gulle, agriculture has been considerably improved. 4. By means of the gulle, a sickly plant derives almost immediate relief, in consequence of all the nutriment being already dissolved by the water, and in a fit state to enter at once into the plant. 5. It is a point of particular importance that, in adopting the use of gulle, a quicker return on outlay of capital is obtained than in the case of common yard manure. 6. From the gulle little or none of the manuring matter is carried off by the rain, while from yard-manure it frequently happens that much is so lost; the practice of spreading it on the field, in heavy dressings, causing its action to continue during three or four years, or even longer. 7. By means of the gulle, plants may be brought with most certainty to the exact degree of luxuriancy which will yield the most abundant produce. 8. The growth of forage plants, particularly of clover and the meadow grasses, is greatly secured by the application of gulle, particularly when (as they do in the Black Forest) we add green copperas to the putrefying gulle, and the stall-feeding of cattle in summer is made more practicable. 9. In adopting the preparation of gulle, less litter will be required. When cattle are not properly bedded, much of the manure escapes in the form of gas, while, by mixing the excrement with a large quantity of water, little or none of it is lost: it is, consequently, evident, that, in the preparation of gulle, a greater quantity of manure is gained than in that of common yard dung; and what the most important point is, that the gulle has retained a larger proportion than that very substance which has the most important influence in the nourishment of plants—namely, ammonia. In fact, all the advantages derived from the preparation of gulle are so important, that we cannot but wish comparative experiments may be made, in order to ascertain with more certainty what is the real amount of gain in its adoption. It might, perhaps, be useful also to prepare gulle from horse and sheep dung; as, under the present management of these manures, far more ammonia is lost by evaporation than in the case of cattle dung.

Top-dressing Meadows and Pastures.

We have repeatedly called the attention of our readers to the favorable results usually following the surface manuring of grass lands, and believing, as we do, that good crops of grass lie at the very foundation of good farming, we keep careful watch for facts which shall help to carry the conviction to the minds of farmers in general. A few such are condensed below:—

The last "Journal" of our State Agricultural Society contains among other interesting matter,

some notes of a "trip to Westchester," by Secretary Johnson. Near E. G. Faile's "the grass crop was light, owing to the severe drouth prevailing in that section of the State." But "Mr. Faile's grass land had been top-dressed, and his yield this year was larger than usual, averaging, we think, three tons to the acre, his meadow-fields showing a fine healthy, green aftermath," while those around were generally scorched by the sun. Col. J. adds: "Mr. F's practice is undoubtedly the true one, and every farmer in that region will consult his own best interest by enriching his meadow land by a thorough top-dressing of manure."

The Genesee Farmer for August has an account of a visit by the editor to the farm of Jos. Wright of Waterloo, Seneca county, and among other items mentions Mr. W's practice of composting his barn manure with swamp muck—"the compost, when well rotted, making an admirable dressing for grass—or indeed any other crop; but Mr. Wright values it especially for the former purpose." Mr. Harris saw a 28-acre field of timothy, (four years from seeding,) that was top-dressed with this compost the early part of last winter. The crop is remarkably even all over the field, and, he remarks, "we never saw anything handsomer." Two and a half acres of compost-dressed timothy had been cut, and yielded seven large loads of hay that it was thought would weigh 25 cwt. each. This would be three and a half tons per acre." Four acres of top-dressed clover had produced eleven large loads of hay. On another 8-acre field of timothy, Mr. W. had applied 40 loads of raw muck per acre, with decided benefit, though not as great as where the muck was first composted with manure.

The same paper speaks of Jas. O. Sheldon's farm, near Geneva, N. Y. "Mr. S. is much in favor of top-dressing his grass lands. One field of timothy of 30 acres, was top-dressed with from ten to fifteen loads of rather strawey manure, the early part of March. The manure has all disappeared in the dense sward, and the crop of timothy is very fine." Mr. Seldon has made some experiments in sowing *salt* on the land at the time of seeding to grass in the spring—and finds the effect quite marked. The Farmer says—"he sows ten quarts of timothy and three quarts of clover seed per acre. In a 30-acre field, seeded down about the 10th of May, 1859, fifteen acres received a bushel and a half of salt per acre, sown broadcast at the time of seeding; and on this portion of the field the seeds took well, and the crop this year, is much larger on the salted than on the unsalted portion."

Speaking of manuring at the time of seeding, we have this year tested the advantage of several applications for that purpose. On a sandy loam field, where grass seed was almost a total failure last year, it has this year succeeded well—partly from being top-dressed with plaster, and somewhat from the more favorable season. Where we top-dressed with composted muck and barn manure the clover is large and thick, and the same is true of a small plot dressed with house ashes. On another plot sown with salt, we think the clover is more uniformly successful, though the growth is not large, than where no fertilizer, save plaster, was applied. The more clayey portion, however promises the best clover—but it may not stand as well the "heaving out" of next spring's trying weather.—*Country Gentleman.*

Artificial Manures.

The following is the report of a lecture delivered by Dr. Anderson, Professor of Chemistry in the University of Glasgow, at the recent meeting of the Highland and Agricultural Society, Scotland. There was a large and attentive audience, consisting of a good many of the influential gentlemen connected with the Show. The chair was occupied by Provost Leighton of Dumfries, who briefly introduced the learned lecturer.

Professor Anderson then addressed his audience as follows:—Gentlemen,—The subject I propose bringing under your notice on the present occasion is one which necessarily commends itself to the notice of the farmer. The success of his cultivation and consequently his pecuniary interests are mainly dependent on the care and judgment he exercises in the selection of a manure capable of affording proper nutriment to his crops, and adapted to the soil on which it is used. It may be safely asserted that no department of agriculture has of late years undergone greater changes or offers more important problems for consideration than the use of manures. A very few years ago the farmer relied exclusively, or at least almost exclusively, on farm-yard manure, and so long as he did so the matters he had to consider were comparatively simple. He employed a substance containing all the elements required by the plant, and supposing it to have been made and preserved with reasonable care it did not differ very widely in composition and quality, and such differences as did exist were under his own control. He conducted for his own behoof a manufacture which, when properly exercised, gives a nearly uniform product; and having thus the advantage of using always the same substance, he was enabled to concentrate his attention upon it, to watch all the different phases of its action, and to acquire an extensive and minute knowledge of all the circumstances affecting its use. Long experience has taught the best method of preparing and applying farm-yard manure. In fact almost all the precautions required for this purpose were known from a remote period, and the skilful farmer based his practice on the knowledge his predecessors had accumulated during a long succession of years, a knowledge which the teaching of science has confirmed and extended. It

must be admitted, however, that although these precautions were well known to the good and skilful farmer, they were often but little attended to in practice, and over large districts of country carelessness and waste were the rule, and the proper management of manure the exception; and the reason of this was no doubt to be found in the fact that farm-yard manure is accumulated on the farm in such a manner that there is no proper standard of value to which it can easily be referred. The last 15 or 20 years, however, has produced a change in this respect which amounts almost to a revolution, and the consumption of foreign and manufactured manures which during that period has risen from nothing until it has attained its present extraordinary magnitude, has brought home to the farmer with a force which it never before possessed, the question of the money value of manures. It may be of some interest if I endeavor now to form some kind of estimate of the sum which is at present expended in this country on the purchase of artificial manures. It is not possible to do this with absolute accuracy, but an approximation may be made which cannot be far from the truth. I find, on referring to the Board of Trade returns for 1858, that the value of the guano imported and retained for home consumption amounted to £3,857,424. This sum, however, appears to be above the average of 1859, which was much below this; but, on the whole, it appears that we were consuming every year somewhere about £2,500,000 in value of guano. Every year there are imported nearly 26,000 tons of nitrate of soda, and making a liberal allowance for the quantity consumed for other purposes, we will say that 15,000 tons are consumed for agricultural purposes, which will make an annual value of £225,000. Of bones there are imported every year 84,000 tons, besides the quantity collected in this country. Of these, 80,000 tons are employed for agricultural purposes, one-half of it is bones, and the other half is converted into super-phosphate. We find that the value of 40,000 tons of bones at £6 a ton is £240,000, and that the value of 40,000 tons of superphosphate at £7 a ton is £420,000. The consumption of coprolites annually cannot be very accurately estimated, but I understand it is about 50,000 tons, which yield 75,000 tons of superphosphate; this at £5 per ton makes £375,000. The value of the consumption of sulphate of ammonia is £150,000 a year; and allowing for other articles a sum of £100,000, we have for the total value of artificial and imported manures annually consumed in this country a sum of £4,010,000. It would be very interesting if it were possible to ascertain what relation this large sum bears to the value of the farm-yard manure annually consumed throughout the country; but on this point it is impossible to obtain any reliable information. A kind of vague estimate might perhaps be obtained from the number of acres of land under cultivation. It is said that the land under tillage on the British Islands exceeds 24,000,000 acres, and though this is probably above the mark, it may be adopted without much error. If now we assume that one-fourth of this is annually manured to the extent of 10 tons per acre with farm-yard manure the annual consumption must be 60,000,000 tons, worth about £20,000,000. It is probable that this estimate is too high, but it shows that at least one-fifth of all the manures now used is artificial, and chiefly derived from foreign sources. The introduction of these new and important elements of fertility has not only altered the whole system of cultivation, but has placed the farmer in an entirely new position. Not only has the field of enquiry into the use of manures been greatly widened, but he is compelled to exercise much vigilance in order to make sure that the substances he buys really possess the qualities he anticipates. Most of the artificial manures in use have a composition which is very small and altogether beyond his control; and even when the farmer has found that any particular substance has given him a satisfactory result, he is compelled before he uses it again to satisfy himself that the substance he buys under the same name really is identical with that from which his experience was derived. Farm-yard manure can always be recognised, and its quality and condition be tolerably well ascertained by ocular inspection; but with all other manures the external appearance is no criterion of their quality, and it is possible to imitate their character so nicely that the worst appears equal to the best. To avoid the difficulties by which he is thus beset, the farmer is compelled to invoke the assistance of the chemist in order to ascertain that the manure he purchases really is what it is represented to be. But then arises the difficulty that results must be expressed in the language of chemistry, which the farmer cannot be expected to understand minutely, and numerous differences are to be found in the mode of stating the results of their experiments, used by different chemists, which he is quite unable to comprehend. The existence of those differences is greatly to be deplored, and it is most desirable that some general and uniform system should be adopted, and as far as possible the best chemists adhere to the same plan, but many circumstances have prevented it becoming universal. Some individuals consider one system preferable to another, and many manufacturers seeking to support the individualizing of their own manures are favorable to a form of analysis which distinguishes them from those of other makers. Another cause of difference is to be found in the gradual progress of our knowledge regarding the analysis of manures. Chemists are constantly at work verifying the methods of analysis and introducing such improvements as really make them more plain and afford a more definite idea of their commercial value. In point of fact the methods now in use for this purpose are of quite

recent introduction. And it is only necessary to contrast the minute and elaborate analyses made at the first introduction of guano with those now in use, to be convinced that the former though scientifically accurate are valueless as a means of establishing its commercial value, while the latter, just because they are less elaborate, afford a ready means of doing so. Every careful analyst finds it necessary occasionally to make alterations in the mode of analysis either because new facts are discovered or because changes occur in the method of manufacture, but he never does this until it is actually forced upon him, because he is well aware of the difficulties and inconveniences it carries with it. Hence changes in the mode of expressing the analyses of manures must be expected to occur from time to time; but as a general rule it will be found that those persons who have the largest experience of the analysis of manures have arrived at methods which are practically identical, and such differences as do exist can be easily explained. On the other hand, it must be admitted that many analyses are made and stated according to systems which are most unsatisfactory, and so as occasionally to puzzle even an experienced chemist. In general, however, the chemist can readily form an opinion as to the degree of reliance to be placed on an analysis, and he can give some rules which in most cases may enable the farmer to judge for himself, at least under ordinary circumstances. The object of my address is to point out what the farmer can do for himself, and to teach him how to read the analysis of manure, and to arrive at a reasonably accurate estimate of its commercial value. At the outset it must be laid down as a rule that the more simply the analysis of a manure can be expressed the better. The object of the analysis being to enable the farmer to effect a comparison between different samples and ascertain which is the best, it ought to be framed with this view. It is not only unnecessary but undesirable that extreme scientific minuteness should be aimed at. On the contrary, the different constituents should, as far as consistent with chemical accuracy, be arranged under several great heads. Thus, for example, a guano generally contains phosphate of lime, phosphate of magnesia, and sometimes a small quantity of phosphate of iron; but it would serve no good purpose to state the quantity of those substances separately, because as they have all precisely the same value, the first step taken by any person anxious to estimate the proper price of the manure would be to add them all together. Accordingly they are all stated under the general head of phosphates and a similar plan is adopted with the other substances. In this way the different constituents are reduced to a small number of easily comparable heads, which will be easily rendered intelligible when we speak of individual manures.

The analyst endeavours as far as possible to avoid adding to the number of those heads unnecessarily, although of course cases occur in which this is indispensable, but he is then careful to explain the causes of his doing so. In discussing those points to which the farmer must attend, it is necessary to divide manures into the two great classes of guano and superphosphates, to which nine-tenths of those now in use may be referred. Guanos are all substances of natural origin, and almost all manufactured manures, though sometimes called artificial guanos or designated by other names, are substantially superphosphates. It is to these two classes that our attention will be chiefly directed, although a short reference will also be made to nitrate of ammonia, nitrate of soda, &c. Directing our attention then, in the first instance, to Peruvian guano, the most extensively used variety of its class, we find that in its analysis the results are expressed in the following manner:—

Water	13.73
Organic matter and ammoniacal salts	53.16
Phosphates	23.48
Alkaline salts	7.97
Sand	1.66
	100.00
Ammonia	17.00
Phosphoric acid in alkaline salts equal to 5.42 phosphate of lime	2.50

It is to be noticed, in the first place, that a guano, like any other manure, is a mixture of valuable and worthless matters. Water and sand, of course, have no value, and they only merit consideration in those cases in which they are so abundant as to reduce the proportion of other matters. The quantity of water is so far of importance that it indicates the condition of the manure, shows that it has not been damaged, and enables us to see that it is sufficiently pulveratent to admit of its easy application. Provided, however, the valuable matters are not below the average, the quantity of water and sand is a matter of comparatively little moment. Looking to the valuable matters, we see that in a genuine Peruvian guano, more than half its weight consists of organic matter and ammoniacal salts containing 17 per cent. of ammonia; somewhat less than $\frac{1}{4}$ is composed of phosphates insoluble in water, and in a form similar to that in which they exist in bones. One-tenth is alkaline salts, containing 2.5 per cent. of phosphoric acid, which is water, and in a condition analogous to that in which it is found in the soluble phosphates of a superphosphate. If, then, any other constituents appear in the analysis besides those just enumerated, and if the sand is larger, the guano is certainly not genuine. As regards the individual constituents of a guano, it is to be observed, as will be afterwards pointed out, that their value differs very greatly, and hence variations in tne proportion of some are of much greater importance than others. It must be borne in mind that $\frac{3}{4}$ of the value of a Peruvian guano are due to ammonia, $\frac{1}{8}$ to phosphates, $\frac{1}{8}$ to phosphoric

acid in the alkaline salts, 1-50th to organic matter, and only about 1-130th to alkaline salts. It will be obvious, therefore, that the two latter are of little moment in judging of the value of any sample, and that they may for all rough estimates be entirely disregarded. In examining the analysis of a Peruvian guano, the attention must be mainly directed to the quantity of ammonia, even a small diminution in that substance having a marked influence on the price of the manure. The reduction in value caused by the ammonia being one per cent. under the average could only be counterbalanced by an excess of 8 per cent. of phosphates, and by a proportionate quantity of other constituents. Of course, Peruvian guanos differ somewhat from the average given above, although it is commonly supposed that the variations are so slight that, provided it be ascertained to be genuine, its analysis is unimportant. No doubt the importers encourage this view by charging the same price for all cargoes of guano altogether irrespective of analysis; but nevertheless there are very material differences, especially in the amount of ammonia, and I have known samples containing as little as 15, and others as much as 19 per cent. of that element, involving a difference in value amounting to nearly £2 10s. per ton.

(*To be continued.*)

Correspondence.

Prizes for the Horse.

Editor of the Agriculturist,—I find by the last *Agriculturist* from Lower Canada that their Board intend to hold a Provincial fair at Quebec on the 26th, 27th, 28th of this month, and that they offer the following sums in premium, thus divided:—

Cattle	$3,047
[4 gold medals, 12 silver and 8 bronze.]	
Sheep	424
Swine	320
Horses	878
Dairy	110
Sugar	24
Field Productions	364
Agricultural Implements	732
Foreign Stock	734
Poultry	71
Horticulture	120
Fruit	132
Total	$6,356

A total of six thousand three hundred and fifty-six dollars and twenty-four medals. Half this sum, and all the medals, being given to cattle alone, while to horses they give only eight hundred and seventy-eight dollars and no medals.

This, Mr. Editor, to those who breed and admire that noble animal, the horse, seems unwise, and more especially so, when in reference to Lower Canada, so celebrated for that excellent specimen, "the Canadian horse."

It may be said that we in Upper Canada have nothing to do with this matter, and probably we have not, but I assure you that I am not writing to find fault with my neighbours, but simply to awaken a greater interest in my favorite the horse, which seems to be in every way degraded by the prize list that I refer to.

In the first place his prizes are small, and no gold medals are to grace his neck, or his master's parlour, and secondly, and still more degrading, he is placed not only after cattle and sheep, but below the hogs.

When you have gone down the prize list sufficiently low to find him, what then is the fact? Why, the heavy draught stallion, valued for his weight, (for his great qualification must be that he is over thirteen hundred pounds) stands before his royal blood relative, which is placed the very last in the scale, enough to make his blood boil, and to disgust his admirers. From reading the prize list for horses alone, one might imagine that the post of honor was in the rear, but when the Durhams stand first in cattle, and the large amount offered comes before them, that is dispelled, and any one can perceive the intention to place them in an inferior position.

I trust that these remarks may fall into the hands of some horse breeder of Lower Canada who will go into the Society, if for nothing else but to look after the interests of their favorite stock, and to obtain justice to the animals themselves.

With us it is different,—horses get justice by our prize list, which is as follows, and stands first in the list:

1st. Blood Horses	$371
2nd. Agricultural Horses	421
3rd. Roadsters "	475
4th. Heavy Draught "	419
Any blood	100
Total	$1,786

And four gold medals; and with the view of further stimulating breeders to improve blood stock, a few gentlemen joined and obtained from our Gracious Queen a fifty guinea plate, to be ran for every spring by young bloods, a boon they have long enjoyed in Lower Canada.

It is to be hoped with this handsome plate, and the premium offered by the Agricultural Association, that the thorough-bred may be increased in the country, and now the Province being full of large mares, we may be enabled to compete with any other country for useful horses, if we cross them with the through-bred stallions.

R. L. Denison.

Dovercourt, Toronto, Sept. 1860.

Grape Culture in the Niagara District.

Editor Agriculturist,—I have read with much interest several communications in your valuable journal on the subject of grape culture

in Canada, and beg leave to offer a few remarks illustrative of my own experience, during a residence of several years on the southern side of Lake Ontario in the old Niagara District. From a careful examination of various reports of the grape growers at Cincinnati, I feel confident that grapes are a more certain crop in the Lake Townships of this District than they are there. A black rot which proves very destructive in southern Ohio after warm rains, is unknown here. One gentleman who has an extensive vineyard, states that they do not expect a good crop oftener than once in three years. Here during the space of nine years I have never failed in securing a well ripened crop of the Isabella, and though left on the trellises all winter, I have never known the vines to be injured by frost. The Isabella is the favorite grape amongst the farmers and others here, and when well ripened, few of the hardy grapes surpass it in flavour. Last fall, though the season was rather unfavourable, I saw some Catawba vines in St. Catharines covered with well ripened fruit.

In October of the past year, having a large quantity of Isabella grapes, my wife determined to make wine of them according to a simple receipt she had obtained. I confess I thought it rather a visionary experiment, and she being unwell, some five gallons of it lay neglected in a large stone jar for three or four months. At length I examined it, and, to my surprise, it came frothing out of the jar, quite clear, and of a delicate pinkish white. I bottled it, and many judges who have drank it, prefer it to the costly champagne ordinarily used. Many of the German farmers in this neighbourhood make large quantities of wine for their own consumption; some I have tasted made at Fort Hill, Welland Co., resembled in flavour a good Madeira. I have no doubt whatever, but that this District alone could, on its sunny hills, produce good and wholesome wine sufficient for the whole Province. This fall I purpose trying the Diana grape—a young vine of this fine species in my possession having a heavy crop. I may mention here that its grapes are entirely exempt from mildew, while an Isabella, a Canadian Chief, and a Sweet Vater close to it, are injured by that pest, which I attribute to their being over shaded by some fruit trees.

But I should strongly recommend any one who is desirous to learn what can be done in grape culture in this district, to pay a visit to the farm of Mr. Wm. H. Read near Port Dalhousie, and three miles from St. Catharines. There can be seen the Golden Chapelas, Black Hamburgh, and several other foreign grapes growing in great luxuriance in the open air. But Mr. Read has especially devoted himself to the culture of seedlings, of which he has now nearly 2000, some of them very promising. On one of them especially, the berries, when I visited him about a fortnight since, measured $3\frac{1}{4}$ inches in circumference. Another which was then ripening, he thinks destined to be the great wine grape of Canada.

Enclosed, I forward a letter received from Mr. Read on the subject of his experiments, which I think will prove of interest to your readers.

Truly yours,

Port Dalhousie, Sept. 1. A. D.

Port Dalhousie, Aug. 18, 1860.

Editor Agriculturist,—For the last fifteen years the culture of the grape has been my favorite hobby; but it is only during the past ten years that I have entered systematically into the business during the intervals I could spare from attending to my farm. I have long been of opinion that none of our native American grapes were exactly suited for general growth in the Province. In this neighbourhood the Isabella, that fine old variety, can be grown successfully, but in other parts and through a large portion of New York and Pennsylvania, it frequently winter kills and does not ripen its fruit. I have nearly all the leading varieties of American origin now bearing fruit on my grounds, but my impression is that for *general use* in this Province none of them are exactly what we require. So likewise the different European wine grapes will not succeed well here or in any other part of America. They are killed by the frosts if not covered, and very liable to mildew. We have a better climate than many parts of Europe where they succeed well, still there is some peculiarity in the American atmosphere which does not agree with them. I raise successfully many fine varieties in the open air, but they require more care than our people are willing to give anything of the kind generally speaking, with respect to pruning, guarding against mildew, and protecting them in winter.

What we really require is an early grape—hardy as an oak, of vigorous growth and free from mildew, and to possess these qualities the vines should possess, as it were, the blood and constitution of our indigenous stock. I have procured at great trouble, and with much travelling, half a dozen wild grape vines of which the fruit is of tolerable size and quality, and these I think are destined to be the parents of a stock of precisely the kind we require. My great object has been to procure vines with the vigorous Canadian constitution of these natives and the good qualities as far as possible of the foreign varieties. To produce these I have been trying for years various experiments in cross fertilisation with Chapelas, Black Hamburgh, and other choice grapes, and I now possess nearly two thousand seedlings produced by these means, several of which are of the most promising character. Many of them are fruiting, and this year, so far as the appearance of the fruit and foliage go, they far exceed my expectations. Three or four of them at this date are really wonderful, the berries measuring from 3 to $3\frac{1}{4}$ inches in circumference, and not a speck of mildew in them, while old varieties beside them are impared by that disease; and this too is a natural

growth under inferior culture in an open exposed situation on the banks of the lake, exposed to the sweeping winds of the north-west. On two of these seedlings the fruit began to colour on the 10th and 11th of August, earlier than the Diana, Concord, Deleware or Hartford Prolific. This is a great point gained, and they promise to be twice as large as the Isabella in berry and cluster.

A native wild grape I procured from the Chippawa Creek is the only real August grape I have yet seen. Its fruit is now quite black, and is about the size of the Isabella. I have some hybrids from this and the black Hamburg which will probably give fruit next year. These, judging from the foliage, will prove of very high grade. From the important results already obtained, I feel confident that my efforts in introducing a new and vigorous family of first class grapes will eventually be crowned with success.

Wm. H. Reed.

The Cultivation of White Mustard.

Editor Canadian Agriculturist,—The request I make, and which I trust will be granted, through the medium of your monthly issue, is, as full a description of the growth of white mustard as can be given—what soil most suitable—what quantity of seed per acre—what a good average crop would be, considered per acre—whether any manufactories for purchase of the raw material, or if not, whether it would pay to erect one, and what power would it require. In England it was a most paying crop, a description of it would oblige.

Edward C. Grenside.

Nelson, County Halton, Sept. 1860.

[We shall be obliged to any of our correspendents who will give an answer to the above queries. Failing this, we shall endeavor to do so ourselves when time will permit.]

Agricultural Intelligence.

Clay for Sandy Soils.—"Clay," said the author of the Elements of Scientific Agriculture, "is found to be the most valuable application for light soils possible; it consolidates them and causes them to retain water and manure, and for the objects of permanent improvement is worth more, load for load, than manure."

A correspondent of the *Boston Cultivator* gives several facts going to illustrate the above statement, some of which we condense for our readers. Four years since he carted several loads of clay on a bank of light sandy loam, upon which it had been impossible to obtain a sward, from its loose, blowing character and situation. It was spread and plowed under, and a light coating of clay given on the surface, and then the land was sown to barley and seeded down. Now the clayed bank gives better crops than any portion of the field. A neighbor put on a piece of clear sandy land, a load of clay and a load of muck to each rod, and sowed to carrots. The product was five bushels per rod.

The application of clay at the rate of fifty loads per acre has been known to so change the character of light friable sands, that the productiveness was kept far above that of similar land not clayed, for twenty years, and no doubt much longer, both bearing the same crops and receiving the same treatment. It was the opinion of Mr. More, who took the first premium on farms offered by our State Agricultural Society some years since, that tough, blue clay was of more value for sandy soils than the best stable manure, ton for ton, as he had proved by the application of both in large quantities. "Still," adds Mr. Howard of the *Cultivator*, "there is much difference in clay in regard to its composition, and it would be advisable to ascertain its qualities by a small trial, before incurring great expense in its application." But no farmer who can conveniently obtain clay for his sandy lands should neglect such an obvious and valuable means of improvement.—*Country Gentleman.*

Farm Notes—Improvements on the Mole Plough.—S. A. Clements, of Chicago, writes us that he has made an improvement on the mole plough, by which he can lay down simultaneously with the passage of the plough through the ground, a tubing of water lime cement that sets and forms a permanent drain tile in the ground at any suitable depth. Provisions are also made for having the grade perfect. Water has access to the pipe through fissures or perforations in the bottom of the pipe. He puts in this kind of drain, where stones or roots are not too frequent, at the rate of twenty-five to thirty cents per rod.—*Michigan Farmer, May* 26, 1860.

Barns upon Side Hills.—Constructing barns upon side hills is a practice which is gaining favor among the best farmers in this country. Having once become acquainted with the advantages of such a location, we are sure no farmer would be willing to construct his barns in any other manner, if this were practicable. The testimony of the *Valley Farmer* on this subject, is as follows:—"The most convenient arrangement for a stock barn is upon a side hill where the hay and grain may be carted in upon the upper story and pitched into the bays below. This arrangement saves a great amount of labor in hauling the feed for the stock. Another advantage of a side hill barn is, the manure may be deposited in a cellar below, where the whole of the liquid portion can be saved, and where the whole can undergo a degree of fermentation before it is exposed to the washing rains and the weather outside. Upon the lower side, too, the cellar can be approached with the team and carts, and material added to the

manure heap to absorb the urine and add to the general stock, or to render the whole easy of access for hauling away. A barn thus arranged not only saves a great amount of labor in hauling the hay, &c., in stacking and feeding, but the quality is greatly preserved by being housed at once after it is cured. Add to these advantages the still more important consideration—the comfort and thrift secured to the animals in consequence of the protection afforded from the storms of winter, and it will be found that no more profitable investment can be made connected with the farm than in *the construction of a suitable barn.*"—*Rural New Yorker, July* 28.

Buckwheat for Fattening Stock.

Eds. Rural New-Yorker.—J. E. D. wants information regarding buckwheat as food for cattle, sheep, and hogs, and to know if it makes as solid flesh as other grain. I can tell him. I have fattened many cattle, and far more sheep, on all, or part buckwheat for the last twenty years, and it will fat stock as well, for the same amount of pounds, as any other grain. Both sheep and cattle can stand higher feeding with it than any other grain, perhaps oats excepted; and I would much rather have half buckwheat meal than all corn meal to feed to three year old steers that have not been fed grain. As for the solidity of the flesh, I neither know nor care as long as it makes them fat.

A friend of mine last fall had about 350 head of sheep, and some cattle, which he must fat; oil meal not to be got, and corn high. He consulted me, and I advised him to buy buckwheat. He hesitated; said a gentleman once told him he fed buckwheat to his sheep and their wool came all off, and they got poorer. I told him what I knew; I was as sure I was right as any other man, having made as fat sheep with buckwheat as I ever did with anything else, and never had any disease among them, and was confident it would be the same with him if he *managed* right otherwise. Well, he bought buckwheat, fed three bushels to the 100 sheep, daily, with straw for fodder and plenty for litter, and he made prime fat sheep, although many of them were lean when he commenced feeding. I have probably as fat a heifer as is in the State. Her feed was buckwheat bran, last winter and spring, and pasture only since the 6th of May.

Buckwheat is said to be poison to hogs. It may or may not be, for anythiug I know, but I do know it is good to fat either cattle, sheep, or horses, and I further sayeth not.

Yours truly, John Johnston.

The Grain Binder.—The editor of the *Rural New Yorker*, lately taking an excursion in the country, says:—

Improvements stop only with man's necessity. The reaper was followed by the *Self-Raker*, and now we have the *Binder*. *Sherwood's Grain-Binder* we had seen at several State Fairs, but never at work in the field, and we were glad to have an opportunity to see it in operation. So we wended our way to the farm of Mr. Neely in the town of Chili. Here we found many old practical farmers, who were somewhat incredulous, thinking it almost impossible to bind the grain on the platform of the reaper, and remove it as fast as cut. And yet, we believe all were satisfied on the trial that this, too, can be done. As fast as the grain is delivered by the raker, it is bound by a fine wire and removed from the platform in the very best condition for handling and pitching; as by this system the grain does not pass to the ground until bound, very little is scattered, and the binder has plenty of time to bind and remove the sheaf before another is cut and ready for binding. A fair day's work for a good reaper is about ten acres, and it requires at least four-binders to follow the machine, but with this binder one man does the work, making, of course, a great saving of labor.

White Clover in Pastures.

The growth of white clover on soils natural to its production, may be encouraged and promoted by a top-dressing of plaster and ashes. Its chief value is for pasture, as it is of too dwarf a growth to give much of a hay crop. A writer in the Boston *Cultivator* says:—There is an advantage in pasturing white clover, which does not strike every farmer. Each joint furnishes a fresh root, (and of course a fresh plant) whenever such joint comes in close contact with the soil, consequently the more it is trodden, the thicker it will spring up. Hence, one reason why it grows most luxuriantly near the bars and gateways of our pastures, where the cattle often congregate." Many farmers have observed this last mentioned fact, without getting hold of the reason thereof. The natural growth of various grasses, self-sown upon all our soils, is a matter of curious interest to the naturalist, and the farmer observant of nature.—*Maine Farmer.*

Horticultural.

Gathering and Packing Fruits.

Now that many of the farmers in this section of the country grow more fruit than is needed for home consumption, and some are devoting their attention to the production of fruit, as a staple crop, a few hints on *Gathering*, *Picking*, &c., we know will not be unprofitable. As a general thing, this work is done in a careless, slovenly manner, the main object seeming to be to *save time*. This might have been well enough when the country was new, fruit cheap, and labor scarce and dear; but now, when good fruit, if properly packed for shipping, will sell at a high rate, and when farmers can obtain more cash

for an acre in fruit than for five acres in any other crop, it is the very worst kind of economy. A barrel of apples of superior specimens, carefully hand-picked, and packed so as to receive no injury by shipment, will sell for more than three barrels tumbled into barrels without selection or care. A very good article, by a correspondent, we will give in the next number, and we ask any of our friends who have had experience in packing and marketing fruits, to give us the benefit of their experience. Mr. Barry, in his *Fruit Book*, gives a very useful chapter on this subject a part of which we copy:

"This is a branch of the general subject of fruit culture and management that requires the most careful attention; for it is quite useless to take pains in producing fine fruits, without taking equal pains in gathering, preserving, and sending them to the table or the market in a sound, sightly, and proper condition. Very few fruit growers seem to appreciate this part of their business. Fruit dealers at home and abroad complain of the careless and slovenly manner in which our fruits are gathered, packed, and presented in the market, and would gladly pay a double price for them in a better condition. The first consideration is:

The period of maturity at which fruits should be gathered.—The stone fruits generally are allowed to reach perfect maturity, or within four or five days of it, on the tree. In moist, cool seasons particularly, they are benefited by being gathered a few days before maturity, and allowed to ripen in a dry, warm room; they part with the water contained in their juices, which thus become better elaborated and more sugary and high flavored.

Summer Pears, too, on the same principle, require to be gathered, as a general thing, from a week to a fortnight before their maturity. Sweet varieties, and such as are inclined to become *mealy*, are entirely worthless when ripened on the tree, and many very excellent varieties are condemned on this account. Such as these should be gathered the moment the skin begins to change color in the least degree.

Summer Apples, too, and especially those inclined to *mealiness*, should be picked early—as soon as the skin begins to change color, otherwise they part with their juices, and become worthless. Ripeness is indicated by the seeds turning dark colored, and by the stem parting readily from the tree when it is lifted upward.

Winter Apples and Pears should be allowed to remain on the trees as long as vegetation is active, or until frosts are apprehended.

Grapes, Berries, &c., are allowed to attain perfect maturity before being gathered.

Mode of Gathering.—Unless it be a few specimens wanted for immediate use, which may be taken with some of the contrivances mentioned under the head of implements, all fruits should be gathered by *the hand*. The branch to be gathered from should be taken in one hand, and the fruits carefully taken off, one by one, with the other, with their stems attached. (For fruits neither keep so well, nor look so well, without the stems. They are then laid carefully in single layers, in broad shallow baskets, the bottom of which should be covered with paper or moss, to prevent bruises. Peaches and other soft fruits should be pressed as lightly as possible, for anything like a squeeze is certainly followed by decay in the form of a brown spot, aud this is the reason why it is so exceedingly difficult to find a perfectly *sound*, and at the same time *ripe*, peach in our markets.

When more than one layer of fruit is laid in the same basket, some soft paper, dry moss, hay, or other material, ought to separate them, for it is difficult to place one layer immediately upon another, and especially if the fruits are approaching maturity, without bruising them more or less. Fruit should only be gathered in dry weather, and in the dry time of the day.

Disposition of the Fruits after Gathering.—When they are thus in the baskets, if summer fruits, they are either carried into the fruit room and arranged on shelves or tables in thin layers, or they are carefully transferred one by one into market baskets, and carried to market on an easy spring wagon, if not by steamboat or railroad, by which jarring or jolting will be avoided. Treated in this manner, they will be in a marketable condition, and one basket will sell for as much as four, carelessly picked, thrown into baskets, and tumbled out of them into a barrel or wagon-box.

Ripe fruits may be kept in good condition for a considerable period of time, in an ice-house, or in some of the recently-invented fruit preservers, and even in very cool dry cellars. The vessels in which they are deposited, should be perfectly clean, that no unpleasant flavor may be imparted to them. Peaches have been sent to the East Indies, by being properly packed in ice; and it may be that methods of packing and preserving will, before long, be discovered, that will give us access to the markets of other countries, even for our perishable summer fruits. We have seen Seckel pears in a very good state of preservation in January, exhibited in the Horticultural Society's rooms in Boston. The science of ripening and preserving fruits is but in its infancy, and Horticultural Societies that have the means will be doing a great public service by offering liberal premiums that will incite to experiment on the subject."

Want of space compels us to omit many things that we designed to say, but the subject will be resumed next week.—*Rural New Yorker.*

The Cranberry.

We condense the following remarks on the cranberry from an article read before the Farmers' Club, of New York, and published in the *Homestead*, by J. C. Young of Long Island:—

Mr. Young states that his operations with the cranberry since 1856, have demonstrated.

1. That cranberries will grow and do well though the vines are taken directly from the marshes where they grow wild.

2. That they will grow upon upland, and immediately after it has been broken up.

3. That they will grow without manure, and without a wet sub-soil.

4. That they do as well without any artificial irrigation.

5. That they need a moderate amount of labor, to keep them clean and free from weeds and grass.

The vines when first planted were not thicker than a broom straw, and were taken from the edges and driest places of marshes adjoining, where they were growing wild. They are now as thick as a pipe-stem, and the rows are a compact mass from ten to twelve inches in width. It is not yet determined whether it is best to leave a space between the rows or to allow them to cover the whole ground. The use of the scuffle hoe in cleaning the spaces between the drills, whilst it loosened the roots of many vines, seemed to give a new impetus to their growth. The land itself is a sandy, yellow loam, in which wells have to be sunk 57 feet to procure water, and there is no running stream within a mile and a half, so that all the watering and irrigation afforded depended entirely upon the rains. From the plot there was gathered last year 24 bushels. Another cultivator set out about an eighth of an acre in the spring of 1855, from which in 1856 he had half a bushel; in 1857, three bushels; in 1858, six bushels; and in 1859, sixteen bushels. Mr. Young himself set out another plot of about a fourth of an acre in 1855, from which in 1859, he gathered between twenty and thirty bushels, thus showing that his system gave certain returns of about the same amount at the end of three years. As a general rule it takes three years before a full crop can be realized from the setting out, and during this time the lot wants a certain amount of attendance.

Who among our Western correspondents can tell us their experience in cranberry cultivation, either upon high or low lands? It is a subject on which there begins to be some enquiry, and on which we would like to elicit all important information. The wild cranberry crop of the present season is said to be large and very promising; and among the speculations of the day we would mention an enterprise put on foot by some of our citizens.

Col. Fairchild, and others associated with him, have purchased some thousands of acres of the cranberry marshes of Juneau county, and are busily engaged at present in erecting the needful buildings, and making the rakes and other requisite fixtures for securing the growing crop, which they represent as promising very large. They are intending to make a permanent business of it, and count on large results. We certainly hope they may realize them, and we see no reason why they should not.—*Wisconsin Farmer, Aug.* 1.

The Cultivation of Native Grapes.

The following is Mr. E. A. Brackett's report to the Fruit Committee of the Massachussetts Horticultural Society, in relation to the cultivation of our native grapes. Mr. Brackett is one of the most successful growers of the grape in this vicinity:

"To your request that I would communicate to you my method of cultivating our native grapes, particularly the Diana, the nature of the soil, system of training, &c., I cheerfully reply, not that I expect to throw any new light on the subject, or that my mode will be found to differ very materially from that of others. The growing interest felt in this department, the certainty that it must continue to occupy a prominent position in the horticultural art, assures me that the experience of any one, however simple, may be of service.

My little vineyard is situated on a side hill, facing the west, and protected on the north by a belt of pine woods. I should have preferred a more southern or eastern aspect. The soil is by no means what would be called a strong one; it consists of from four to six inches of turf mould, with a reddish subsoil about two feet deep, resting upon a bed of blue gravel. In preparing for the vines the ground was trenched two feet deep, and the top soil put at the bottom. Stakes eight feet long were then set at the distance of seven feet apart each way; one vine was planted to each stake, and immediately cut down to two eyes.

And here let me say a word as to the time of setting the vines. My experience is greatly in favour of fall planting. A vine set in the autumn (and it should be done as soon as the leaf falls) will in three years be as strong and as capable of bearing a crop of fruit, as one of five years old set in the spring. The training of my vines is at once simple and ornamental. The first year two shoots are allowed to grow, and as they elongate, are carried spirally, both in the same direction, about five inches apart, around the stake, and this is continued until they reach the top. The laterals are allowed to grow at random. In the fall they should be pruned back to within eighteen inches of the ground, and the laterals to one eye.

Second year, continue the two canes from the two uppermost eyes, as directed in the first year. The laterals will require summer pruning. In the fall cut back the canes to within eighteen inches of last year's wood. Continue this course until the vine is established the whole length of the post—whatever surmounts it, is to be cut back. The fruit is borne upon the side shoots, and the pruning is on the short spur system. The form of the vine may be shaped to the taste of the cultivator; that of the pyramid is decidedly the best.

Those who understand the nature of the vine will readily perceive the advantage this system offers. The vine is thus kept at home. The

light and air circulate freely through it. The buds break evenly; there is no tendency in one part to rob the other of its due proportion of sap, and when once established, requires less care than any other mode of training.

Some of my vines, the first year after planting, were watered with sink-drain water, and being satisfied that it injured them, I have discontinued the practice, and have since root-pruned them, in order to check too free a growth of wood. Many of my neighbours injured their vines by giving them large quantities of stimulating manures, such as fresh stable manure, dead horses or other animal manure, thereby exciting them to make an increased growth of long-jointed wood. I grow my vines for the fruit, and am satisfied if they make a few feet of short-jointed wood, and the only manure (if manure it may be called) which I now give them is a top-dressing of anthracite coal ashes.

The Diana, with me, has proved a great grower and free bearer; the bunches of good size, and the berries large, some of them measuring seven-eighths of an inch in diameter. It is a matter of surprise that this, the most delicious of our native grapes, should have received so little attention, while new varieties, greatly inferior to it in point of flavor, have been heralded as the greatest acquisition to our list of hardy vines.

The past season has not been favourable to the ripening of out-door grapes."—*Maine Farmer.*

How to Prevent the Effects of Late Frosts on Grape Vines.

Mr. Delanque, the proprietor of a vineyard in the Department of Derdogne, France, writes the following letter to the *Journal of Practical Agriculture* at Paris, which we translate for our readers:—

"I write conformably to your request, relative to the practice adopted at the South-west, to prevent the effects of late frosts on the grape vines. You must note, however, that the vineries of this region are less injured by late frosts than those of other portions of France that are more elevated, and farther from the influence of the sea, and consequently more exposed to extremes of temperature. If we could so arrange it that the vines would only vegetate after the late frosts, it would be evident that the problem of saving the crop would be solved. We may gain this end, if we select (not the late varieties) but only the branches or shoots which are latest in pushing forth their buds in the spring. This plan, however, can only be used at the risk of losing the best qualities of the wine made from the part, and cannot be generally applied. The influence of pruning, in this case, on the contrary, is constant and general. It has been found that we can retard very considerably the vegetation of the whole vine, by pruning at the time of the latest frosts and when the upper buds or those at the ends of the branches have began to leave out, and have even been injured by frost, whilst the inferior buds in the lower part of the branches are as yet dormant and undeveloped. The cutting-in of the long vine shoots, whilst in full growth, is evidently mutilation of the vine, which is sensibly felt, but we have, by this operation, succeeded in retarding the growth of the buds of the vine for a time, and rendered them safe from the effects of the late frosts, and consequently they are developed with great rapidity, at a time when the cold is not feared. But, you will probably ask, why this operation so simple, so old, and so efficacious is not employed everywhere and always? That is easily comprehended, when you bear in mind that it is materially impossible in a country exclusively vine-growing thus to prune all the vines in a few days, which must be the case, if the remedy is to be generally applied. Our mechanical appliances have not yet enabled us to lessen this difficulty. It results from this state of things that the vine-growers, the most convinced of the excellence of late pruning, are obliged to reserve for it only the vineyards of the highest value, and those most exposed to the effects of the late frosts; and this method succeeds perfectly. Reduced even to these modest proportions, the services rendered by this simple method are so great, that it is desirable it should be known and put in practice wherever it is as yet unused."

Curiosities of Gardening.

A writer in the *Quarterly Review* says that gardening, as well as literature, has its curiosities, and a volume might be filled with them. How wonderful, for instance, is the sensitive plant which shrinks from the hand of man—the ice-plant, that almost cools by looking at it—the pitcher-plant, with its welcome draught—the air trigger of the stylidium—and the carniverous Venus' fly-trap (*Dionæa Muscipula*) which is said to bait its prickles with something that attracts the flies, and then closes on and destroys them, and their decay is supposed to afford food for the plant. Disease is turned into beauty in the common and crested moss rose and a *lusus naturæ* re-produced in the hen-and-chicken daisy. There are phosphorescent plants, the fire-flies and glow-worms of the vegetable kingdom. There are the microscopic lichens and mosses; and there is the Rafflesia Arnoldi, each of whose petals is a foot long, its nectary a foot in diameter, and deep enough to contain three gallons, and weighing fifteen pounds! What mimicry is there in the orchises, and the hare's foot fern, and the Tartarian lamb (*Polypodium Baroneytz*). What monsters (such at least they are called by botanists) has art produced by doubling flowers, dwarfing and hybridizing

—"painting the lily"—for there are pink lilies of the valley, and pink violets and roses, and blue hydrangias; and "many others are now busy in seeking that philosopher's stone of gardening" the blue dahlia—a useless search, if it be true that there is no instance of a yellow and blue variety of the same species. Strange things have been attempted too, in gardening ornaments. There are waterworks like copper trees to drench the unwary, and the Chinese have in the middle of their lawns ponds covered with some water weed that looks like grass, so that a stranger is plunged in over head and ears, while he thinks he is setting his feet on firm ground. In the ducal gardens of Saxe Gotha is a ruined castle which was built complete, and then ruined *expres* by a few sharp rounds of artillery! Stanislaus, in the grounds of Lazienki, had a broad walk planted by pedestals, upon which living figures, dressed or undressed, after the manner of the ancients, were placed on great occasions. The floating gardens or chinampas of Mexico are mentioned both by Clavigero and Humboldt. They are formed on wicker work, and when a proprietor wishes for a little change or to rid himself of a troublesome neighbor, he has only to set his paddles at work or to lug out his towing rope and partake himself to some more agreeable part of the lake. We wonder that the barbaric magnificence which piled up mimic pyramids and Chinese watch-towers and mock Stonehenges, never bethought itself of imitating these poetical Chinampas. It was one of Napoleon's bubble schemes to cover in the gardens of the Tuilleries with glass—those gardens which were turned into potato-fields during the first revolution, though the agent afterwards complained that the Directory never paid him for the sets! One of the most successful pieces of magnificent gardening is the conservatory at Chatsworth with a carriage drive through the centre, infinitely more perfect, though not so extensive as the covered winter gardens at Potemkin's palace at Tandria, near St. Petersburgh, which is a semi-circular conservatory attached to the palace, wherein the walks wander amid flowery hedges and fruit-bearing shrubs winding over little hills, in fact, a complete garden artificially heated, and adorned with busts, statues and vases. When this mighty man halted in his travels, if only for a day, his travelling pavillion was erected and surrounded by a garden composed of trees, seats and statues, and divided by gravel walks. The gardens of the Czar are well described by Bayard Taylor, who was amazed to find on the banks of the Neva, amid the horrors of a Hyperborean winter, gardens glowing with all the luxuriance of a tropical clime.—*Detroit Tribune.*

Catawba Grapes.—George Hustman, well known as one of the most intelligent grape growers in Missouri, thinks the Catawba should be struck from the list as unworthy of cultivation, because it is superseded by better sorts.

Veterinary.

Cattle Plague, or Rinder-Pest.—During the past century the cattle plague or murrain, has made fearful havoc; in Germany alone, 28,000,000 head of cattle were carried off by it, and in the whole of Europe, including Russia, but exclusive of Siberia and Tartary, upwards of 200,000,000 have died of this pest. The special symptoms of this disease, in its early stage, are said to be a husky cough, which is increased, particularly after the cattle have been watered or moved about; less inclination for food, indifference as to chewing the cud, dullness of the hair, and its rough appearance in particular places, and fever after these symptoms have continued for some time.

Cure for Colic in Horses.—E. H. Ezell, of Houston county, Ga., advises (*in the Southern Field*) simply to pour cold water on the back of the animal for fifteen or twenty minures. Pour the water on from the wethers to the loins, so as to run profusely over the sides and stomach. He has seen it tried in fifty instances. It will give almost entire relief in one hour.

The Treatment and Curability of the Pleuro-Pneumonia.—Dr. Geo. H. Dadd, in the August number of the *American Stock Journal* makes the following remarks relative to this disease which has been subdued in Massachusetts, and very largely through his instrumentality as one of the commissioners:

As regards the curability of this malady, I agree with our principal authorities, that there is no uniform, nor reliable mode of treatment known to science, and almost all surgeons that have treated, or experimented on the treatment of the *contagious* or infectious pleuro-pneumonia, consider it an incurable disease. It is a well known fact that many of the subjects of this malady are apparently cured, thrive well, fatten, and their carcasses are sold in European markets; yet their lungs are seldom if ever sound; because, in the majority of cases, there is found either altered structures, or loss of substance of the same. As but few patients can be restored to entire usefulness, it seems that the isolation of infected and exposed animals; the inoculation of those not diseased yet located near infected regions; and extirpation in cases of emergency, are the best means of managing this pest.

Because in ordinary pleuro-pneumonia, medicinal remedies, hygienic means, and the recuperative efforts of nature, conjointly or not, as the case may be, are said to cure the malady, it is inferred by some that the contagious affection can also be successfully treated, but facts show the contrary.

Should the disease, however, assume a milder form in this country, than it has in Europe, all the curable cases may be benefitted by a judicious system of medication; yet in that event the malady will have its "run," as the saying

is, and like ship fever, typhoid fever, or the small pox, will defy our attempts to "cut them short."

All that I should attempt to do in the treatment of this contagious malady would be to try and keep the patient alive while the disease was running its course; and the remedies are, pure air, sanative medicines and good nursing.

Inquiries and Notes.

SPRINGHALT—COLDS IN HORSES.

EDITORS RURAL NEW-YORKER,—I would like to inquire of you, or of some of your experienced readers, if there is any cure for the springhalt in horses,—if so, I should like to know what it is. Also, the best treatment for a cold which has settled on the lungs of a horse.—*Subscriber, Rice Co., Minn.*, 1860.

SPRINGHALT is an affection of the muscles which, in the great majority of cases, has given veterinarians a large amount of trouble. In former days it was looked upon as a disease originating in, and affecting only the organs of motion, but it is now considered as arising in the nervous system, and practitioners acknowledge their inability to treat it medicinally. The stomach will take in and digest remedial agents, but to make them reach the brain, and its nervous filaments, is quite another matter. Occasionally, however, this disease is induced by some minor derangement, and then we may successfully treat it by removing the morbid action promoting it, which will be accomplished by restoring the general health of the animal.

Where springhalt exhibits itself suddenly, Dr. Dadd recommends that the horse be permitted to rest, for in such case it is natural to suspect that some injury, resulting from a blow or strain, has been done to the nerves of voluntary motion. When this is the condition, cold water bandages around the body, rest, light diet, nauseating medicines, with an occasional light dose of cathartics, to clear out the bowels, will be indicated. Fomentations and light friction with anti-spasmodic liniment may be found of material assistance. In chronic cases of long standing, all hopes of recovery may as well be abandoned. Should the patient, however, be in a state of debility, the general health may be improved, and the spine should be daily rubbed with an embrocation calculated to restore nervous energy. For this latter purpose, take linseed oil, one pint; spirits of hortshorn, two ounces; fine mustard, half an ounce. As a medicine, take powdered golden seed, powdered gentian, cream of tartar, and charcoal, one ounce of each, and one-half ounce of assafœtida. Mix, divide into eight parts, and give one in the food morning and evening.

For a *simple cough* the following compound is recommended:—Slippery elm, Indian turnip, elecampane, skunk cabbage and caraway seeds, (all powdered,) four ounces of each. The dose is half an ounce, twice daily, given in gruel. If the cough is one that remains after the disappearance of some pulmonary disease, such, for instance, as catarrah, influenza, &c., take balsam of fir, one ounce; sweet spirits of nitre, two ounces; sirup of garlic, four ounces. Dissolve the balsam in the nitre, then add the garlic. Dose, one ounce, night and morning; given in mucilage or thin gruel.—*Rural New Yorker*.

Medical Qualities of the Carrot.

Stewart, in his excellent work on Stable Economy, says, "Not only do carrots give strength and endurance to sound horses, but also give recovery and health to such as are sick. There is nothing better, perhaps none so good. When first given, they are strictly diuretic and laxative, but as the horses become accustomed to them, these effects cease to be produced. They also improve the state of the skin. They form a good substitute for grass, and an excellent alterative for horses out of condition. To sick and idle horses they render corn unnecessary. They are beneficial in all chronic diseases connected with breathing, and have a marked influence on chronic cough and broken wind. They are serviceable in diseases of the skin; and in combination with oats, restore a worn horse much sooner than oats alone.

Domestic.

Receipts.

YOUNG CORN OMELET.—To a dozen ears of fine young Indian corn, allow five eggs; boil the corn a quarter of an hour, and then, with a grater, grate it down from the cob; beat the eggs very light, and then stir gradually the grated corn into the pan of eggs; add a small salt-spoonful of salt and a very little Cayenne; put into a hot frying pan equal quantities of lard and fresh butter, and stir them well together over the fire; when they boil, put in the mixture thick, and fry it, afterwards browning the top with a red-hot shovel or a salamander; transfer it when done, to a heated dish, but do not fold it over. It will be found excellent. This is a good way of using boiled corn that has been left from dinner the preceding day.—*Maine Farmer*.

TO MAKE SOFT GINGER BREAD.—6 teacups of sugar, 1 of cream, 1 of butter, 2 of molasses, 3 eggs, 3 tablespoonfuls of ginger, 1 teaspoonful of soda, 2 of cream of tartar and 5 cups of flour. Stir it well and bake in a shallow tin pan.

To Make Ginger Pound Cake.—Cut up in a pan three-fourths lbs. of butter, and a tea cup of brown sugar, mix with a pint of West India molasses; then stir them well together. Sift into a pan a pound of flour; in another pan beat five eggs; add gradually the eggs and flour to the mixture of butter, sugar and molasses, with two large table-spoonfuls of ground ginger and flour of ground cinnamon. Then stir in a glass of brandy, and a small teaspoonful of saleratus melted in a very little milk. Stir the whole for some time. Then add a pound of raisins dredged with flour. Transfer the mixture to a buttered tin pan and bake from two to three hours.

Miscellaneous.

Mr. Mechi and the Hounds.

For the last two months nothing has been heard in the agricultural world but a perfect storm of abuse against Mr. Mechi. Go where you like, you hear the foulest aspersions made upon his motives and his character, and our agricultural papers fill column after column with sarcasm levelled at his statements. We have Mr. Bond, for instance, shrewd enough, we imagine, to know that Mr. Mechi's self-respect forbids him to accept his insulting challenge, making a gratuitous show of his philanthropic generosity. I think by this time the public are sufficiently aware that Mr. Bond has £300 to devote to charitable purposes. Any one not acquainted with the true nature of this tempest would naturally think that poor Mr. Mechi has singularly disgraced himself, and rendered himself guilty of a very heinous offence. But, after all, what is Mr. Mechi's crime? He has merely directed the extraordinary gifts of his mind and his devotedness to the cause of progress towards agricultural improvements. He has waged a war to the knife with the most inveterate of prejudices—those of the agricultural classes. He has shown that by a judicious application of capital employed in removing old uses and abuses, and establishing means suggested and corroborated by the discoveries of modern science, twice as much profit could be realised by agricultural enterprise as the upholders of routine are wont to get. For many years he opened to all comers the treasures of his hospitality, he showed his crops to all, opened his books for their inspection, published his balance sheets, did, in fact, everything that the most inquisitive can demand short of impertinence, to prove the soundness of his views. The fact that his detractors came smiling to his hall with foresworn but concealed enmity, quaffed his wines and drank his health, and then skulked back to their abodes to forge shafts of abuse, leads to this inevitable conclusion—that all the opposition raised professedly against Mr. Mechi's agricultural theories is intended against the man. He, forsooth, a city merchant, a "razor grinder," has dared to intrude into the time-hallowed and venerable precincts of the agricultural interest, and not content with spending his money as he lists, he has been so bold as to tell the Mistresses Gamp of agriculture that their ways were not what they ought to be, that they had too many wooded hedges on their farm, too much water in their clays, too many weeds in their stubbles, too much waste in their dung heaps, too much foulness in their byres, too little brains in their scull, and, consequently, too little money in their pockets. And for telling all these wholesome truths, certainly not discovered by him, he is placed upon the index, he has become a marked man for that species of bitter persecution and abuse which is the fruit of bigotry. Are we, then, to conclude that money cannot be gained by agricultural pursuits? Have no fortunes been realised by farming? Are the tenant farmers of this country in such a state of poverty and want as to warrant the assertion that when Mr. Mechi says that he has realised in his two-fold position of landlord and tenant a net return of a little more than £3 per acre, the statement is incredible? And is Mr. Mechi the only man that has ever obtained it? Really, Mr. Editor, I have no heart to continue the consideration of this truly disgraceful subject and I venture to express the sincere hope that this ungenerous persecution of an amiable and estimable man will at last come to an end, and remove from the character of British agriculture that stain of bitterness and malice which certain busy bodies would fain affix upon her hitherto glorious and honourable fame.—A Lover of Fair Play, in *Gardener's Chronicle.*

Can't Cook.

It is a sad defect when young ladies are incapable of directing their own servants. Shoes without soles, or wristbands without a shirt are not more useless than one of these. One day, shortly after his marriage, a young merchant went home, and seeing no dinner ready, and his wife appearing anxious and confused, asked:

"What's the matter?"

"Nancy went off at ten o'clock this morning," replied his wife, "and the chambermaid knows no more about cooking a dinner than the man in the moon."

"Couldn't she have done it under your direction?" inquired the husband, very coolly.

"Under my direction? I should like to see a dinner cooked under my direction."

"Why so?" asked the husband in surprise; "you certainly do not mean that you cannot cook a dinner?"

"I certainly do, then," replied the wife. "How should I know anything about cooking?"

The husband was silent, but his look of astonishment perplexed and worried his wife."

"You look very much surprised," she said, after a moment or two had elapsed.

"And so I am," he answered, "as much surprised as I should be at finding the captain of one of my ships unacquainted with navigation. You don't know how to cook, and the mistress of a family! Jane, if there is a cooking-school any where in the city, go to it, and complete your education, for it is deficient in a very important particular."

Milk.—The principal constituents of milk are cream or oily matter, casein or cheese, sugar, saline matters and water. The proportion of each is variable in different milks, but it may be stated, as a general rule, that milk which presents more than 87 per cent of water is of inferior quality; on taking the average proportion of this ingredient according to the different analyses, it is found to be 86.8 per cent. If 87 per cent can be assumed as the standard, a very simple process will, in many cases, be sufficient to detect the degree of dilution to which the sample has been subjected by fraudulent persons. Evaporate 100 grains to dryness; ascertain the loss, from which deduct 87; the difference, then, multiplied by 100, and divided by 13, will give the per-centage of added water, thus:—Suppose 100 grains to lose, on evaporation, 89.6 grains; then 89.6—87= 2.6, and 260 divided by 13 gives 20 per cent of added water.—*Scientific American.*

Shoeing Hens.—We observe a recent notice in some paper, of the practice of making woollen shoes (or rather boots) to prevent hens from scratching. A flock of fifty fowls, like our own, would require considerable labor in the manufacture of a hundred woollen boots, which might be worn through in a short time and need renewing. It is much better we think, to procure a breed that will not scratch. There is another point of importance—that is to keep the animals well fed, during the season when scratching is most feared. We keep from thirty to fifty of the White Shanghai,—a very quiet, well behaved, and profitable fowl,—and adopt the most economical mode, namely, regular feeding with grain,—and although there is no barrier between their ordinary range and the kitchen garden, they do not scratch yearly enough to do twenty-five cents damage.—*Country Gentleman.*

English Ladies.—I think it is not natural prejudice which makes me believe that a high-bred English lady is the most complete of all Heaven's subjects in this world. In whom else do you see so much grace, and so much virtue; so much faith, and so much tenderness; with such a perfect refinement and chastity? And by high-bred ladies I don't mean duchesses and countesses. Be they ever so high in station, they can be but ladies, and no more. But almost every man who lives in the world has the happiness, let us hope, of counting a few such persons amongst his circle of acquaintance—women, in whose angelic natures there is something awful, as well as beautiful, to contemplate; at whose feet the wildest and fiercest of us must fall down and humble ourselves, in admiration of that adorable purity which never seems to do or to think wrong.—*Literary Magazine.*

Rolled in Money.—Czechtitzky, celebrated at Berlin as an actor and billiard-player, when he could not any longer find persons to play with him, he took to card playing, in which he got equally skilled and won enormous sums of money. It is related of him by Varnhagen that in order to revise the expression, "Sich im Golde walzen" (rolling in money,) he covered his floor with gold pieces, and, in the presence of witnesses, absolutely rolled about upon them in a state of nudity. Fortune forsook him at length, and he used to beg persons to spit in his face; for though he had rolled in money, he had lost it all.—*Humboldt's Letters to Varnhagen Von Ense.*

Making-up Appearances.—Among other items of key-hole knowledge, we discovered that every day, about dinner time, our neighbours had a table set out in their parlour, with clean damask cloth and napkins, pieces of bread, silver-forks, spoons, castors, &c., handsome wine-glasses and goblets, and all the paraphernalia of a very genteel dinner equipage. The table stood thus during an hour or more; so that if visitors came in they might suppose that the family were preparing to sit down in style *comme il faut.* But to this table they never did sit down; for when the time of exhibition had elapsed, all the fine things were taken off and carefully put away for a similar show the next day, and the next. Meanwhile (as we found by reconnoitring through the kitchen key-hole,) the Portuguese family all assembled in the place where their food was cooked; seated themselves on the floor round a large earthen pan filled with some sort of stew; and each dipped in a pewter spoon, and fed out of the same pan.—*Autibiographical Recollections; by the late Charles Robert Leslie, R. A.*

Sir Matthew and Saint Matthew.—Sir John Germain was a mere soldier of fortune, who came to England from the Low Countries, and made his fortune by wives. He first married the Duchess of Norfolk, and after her death (1705) he married the celebrated Lady Betty Berkeley, sister of Earl Berkeley. He was so extremely ignorant that he thought St. Matthew's Gospel was written by Sir Matthew Decker. Lord Orford once asked Lady Viscountess Fitzwilliam, who was Sir Matthew's daughter, whether this strange story was true. She was a very cautious, prudent woman, spoke very slow, and not without a good deal of deliberation. She assured him it was, and mentioned as a confirmation of it, that Sir John at his death left Sir Matthew £200 to be disposed of among his poor countrymen in London, having the greatest confidence in his honest execution of the trust, as he had already given the world such a proof

of his piety in having written St. Matthew's Gospel.—*Prior's Life of Malone.*

Home's Harmony.

The lark may sing her sweetest song,
As rising from the waving corn,
On soaring wings, she skims along
To welcome in the rising morn;
Her sweetest song is nought to me,
Compared to home's sweet harmony.

Deep in the woods, the nightingale,
At midnight hour, may tune her lay,
May pour upon the list'ning vale
Her lovliest streams of melody;
Lovely her midnight lay may be,
But lovlier home's sweet harmony.

Sweet are the songsters of the spring,
And of the summer's sunny days,
And autumn's feathered warblers sing
In rapturous strains their sweetest lays;
Lovely the songs of bower and tree,
But lovlier home's sweet harmony.

But O, what cheers the winter's night,
When all around is dark and gloom,
When feathered songsters take their flight,
Or fill a gloomy little tomb?
'Tis at such hours as these that we
Prize most our home's sweet harmony.

O, when dark clouds above us lower,
And life's drear winter o'er us comes,
'Tis then we feel your magic power
Ye songsters of our hearts and homes;
For soon the lowering clouds do flee
From our dear home's sweet harmony.

The First Robert Peel.—When Robert Peel, then a youth, began business as a cotton-printer, near Bury, he lodged with his partner, William Yates, paying eight and sixpence per week for board and lodging. "William Yates' eldest child," says our author, "was a girl named Ellen, and she soon became an especial favorite with the young lodger. On returning from his hard day's work at "The Ground," he would take the little girl upon his knee, and say to her, "Nelly, thou bonny little dear, wilt be my wife?" to which the child would readily answer, "Yes," as any child would do. "Then I'll wait for thee, Nelly; I'll wed thee, and none else." And Robert did wait. As the girl grew in beauty towards womanhood, his determination to wait for her was strengthened; and after a lapse of ten years—years of close application to business and rapidly increasing prosperity—Robert Peel married Ellen Yates when she had completed her seventeenth year; and the pretty child, whom her mother's lodger and her father's partner had nursed upon his knee, became Mrs. Peel, and eventually Lady Peel, the mother of the future prime minister of England. Lady Peel was a noble and beautiful woman, fitted to grace any station in life. She possessed rare powers of mind, and was on every emergency, the high-souled and faithful counsellor of her husband. For many years after their marriage, she acted as his amanuensis, conducting the principal part of his business correspondence, for Mr. Peel himself was an indifferent and almost unintelligible writer. She died in 1803, only three years after the baronetcy had been conferred upon her husband. It is said that London fashionable life—so unlike what she had been accustomed to at home—proved injurious to her health; and old Mr. Yates was afterwards accustomed to say, "if Robert hadn't made our Nelly a Lady, she might ha' been living yet."

Chinese Salutations.—The salutation between two Chinamen when they meet, consists in each clasping and shaking his own hands, instead of each others, and bowing very profoundly, almost to the ground, several times. A question more common than "How do you do?"—is "Have you eaten rice?" This being the great article of food throughout the empire, and forming the chief and indispensable part of every meal—it is taken for granted that if you have "eaten rice" you are well. Etiquette requires that in conversation each should compliment the other and everything belonging to him, in a most laudatory style; and depreciate himself with all pertaining to him, to the lowest possible point. The following is no exaggeration, though not the precise words:

"What is your honorable name?"
"My insignificant appellation is Wrong."
"Where is your magnificent palace?"
"My contemptible hut is at Suchan."
"How many are your illustrious children?"
"My vile worthless brats are five."
"How is the health of your distinguished spouse?"
"My mean, good-for-nothing old woman is well."

The Seventeen Year Locusts.—Much has been said about the harmlessness of these Locusts, which we were disposed to put faith in. Their history, undoubtedly, is a wonder; one of the most striking, indeed, in the whole range of insect life; but recent observation has compelled us to put them in the same category with the curculio, the wheat fly, the cut worm, and other destructive pests, to be destroyed without mercy. The woods in some portions of New Jersey look as if a fire had passed over them. The *ovipositing* of the Locust is not confined to the young wood of the present year, as is generally thought; we have seen innumerable instances of it in wood two, three, and four years old; we have also seen hundreds of young pears, apples, ornamental trees, shrubs, &c., completely cut up by them, the incisions, in many of the young trees, being carried down the *body* of the tree to within a foot of the ground. Many of the limbs

were dead others were dying, and the probability is that young trees will be entirely destroyed. It is too soon to speak confidently of the extent of the injury sustained, but it will no doubt be considerable.—*Horticulturist.*

My Coat.

BY BERANGER, THE FRENCH POET.

Though hardly worth one paltry groat,
Thou'rt dear to me, my poor old coat;
For full ten years my friend thou'st been—
For full ten years I've brushed thee clean:
And now, like me, thou'rt old and wan;
With both the glow of youth is gone;
But worn and shabby as thou art,
Thou and the poet shall not part,
Poor coat.

I've not forgot the birthday eve
When first I donned thy glossy sleeve;
When jovial friends in mantling wine
Drank joy and health to me and mine.
Our indigence let some despise,
We're dear as ever in their eyes:
And for their sakes, old as thou art,
Thou and the poet shall not part,
Poor coat.

One evening, I remember yet,
I, romping, feigned to fly Lisette;
She strove her lover to retain,
And thy frail skirt was rent in twain.
Dear girl, she did her best endeavour,
And patched thee up as well as ever.
For her sweet sake, old as thou art,
Thou and the poet shall not part,
Poor coat.

Never, my coat, hast thou been found
Bending thy shoulder to the ground,
From any upstart "Lord" or "Grace"
To beg a pension or a place.
Wild forest flowers—no monarch's dole—
Adorn thy modest button-hole;
If but for that, old as thou art,
Thou and the poet shall not part,
Poor coat.

Poor though we be, my good old friend,
No gold shall bribe our backs to bend;
Honest amid temptations past,
We will be honest to the last;
For more I prize thy virtuous rags
Than all the lace a courtier brags;
And while I live and have a heart,
Thou and the poet shall not part,
My coat.

GOLD INK.—Take some leaf-gold and white honey and grind them together upon a marble slab until the gold is reduced to an impalpable powder. The paste now formed is agitated in a large glass tumbler with soft water, which dissolves the honey while the gold falls down to the bottom. The water is now poured off and the gold washed until all the honey is removed, after which the gold is dried and then suspended in a mucilage of gum arabic. It is now used for writing upon paper, and when it becomes dry it may be burnished and rendered brilliant. Silver ink is prepared in the same manner, by substituting silver leaf for the gold. Gold is also obtained in powder by dissolving nitro-hydro-chloric acid (*aqua regia*), which is called the terchloride of gold. When crystallized, this is soluble in water, alcohol and ether, and may be used for gold ink by adding a gum mucilage to the water or alcohol in which it is dissolved. Metallic writing fluids of different colors can be made by mixing bronze powders in gum mucilage.—*Scientific American.*

In the Gulf of Manaar (Ceylon) turtle are frequently found of such a size as to measure five feet in length. Sir Emerson Tennant states that, in riding along the sea-shore one day, he saw a man in charge of some sheep, who was resting under the shade of a turtle shell which he had erected on sticks to shield him from the rays of the sun.

Great quantities of what is called "patent fuel" are manufactured and employed in England, principally on steamships. It consists of the small or fine bituminous coal pressed into square blocks, and rendered adheisive by bitumen. It can be stowed away in less space than the shapeless lumps of common coal, and it is therefore preferable for long voyages.

LARGE TILE OPERATIONS.—Messrs. C. & W. McCammon, of Albany, N. Y., sold in nine months from the first of April, 1859, 1,000,000 of drain tiles. They are now preparing to make 2,000,000 in the present year. They will use a new machine, of their own invention, which will greatly facilitate the process of manufacture; it will first crush all the clay, rendering it of equal fineness and consistence, and then discharge it directly into the tile mill.—They can burn 150,000 tiles at once, in one kiln. All the tiles used in the New York Central Park are made by Messrs. McC.

A PIG STORY.—A farmer out west, was last summer, much annoyed by one of his sows breaking into the corn field, and as he could find no hole in the rail fence he was at a loss to imagine the mode of her entrance. By concealing himself in the field however, one night, he discovered that it was effected by means of a hollow log, through which she would crawl, one end opening on the inside, and the other on the outside of the enclosure. Accordingly after having driven her out once more, the gentleman so arranged the log (it being very crooked) that both ends opened on the outside of the field. When the animal entered the accustomed place the next day and upon emerging found herself in the same field, her astonishment was ludicrous to behold. She again entered the log and again emerging on the wrong side evinced even more

surprise than before. At length finding all her efforts in vain she uttered a short angry grunt of disappointment or fear, turned short around and started off on a brisk run, nor could either coaxing or driving ever induce her to visit that part of the field again.

Maple Sugar.—The *Scientific Artisan* contains the following brief, but excellent suggestions, relative to sugar-making:—"It is impossible to make good maple sugar unless the sap is boiled soon after it runs. If it is allowed to sour in the least the iron vessel in which it is boiled will darken the color of the sugar, giving it a disagreeable taste, and very injurious to the health of those who use it. Never allow the sap to burn on the top of the kettle, and every time you fill it up wash it off. You can remedy this by setting your kettle in an arch, leaving a part of your kettle down as low as the line of division between fire and no fire. Never allow your syrup to stand over night. Make your syrup so thick that one quart will make one pound of sugar, and let it get perfectly cool before you sugar off. Stir in a little milk; then keep it over a moderate fire until it is skimmed, and be careful not to burn it afterwards. Stir the sugar while it is cooling, or until perfectly dry. Never pour hot sugar into wooden vessels."

Tarring Potato Sets.—At a recent meeting of the New York State Agricultural Society, Hon. A. B. Dickinson said he had not sown or planted anything for ten years without a coating of tar, and in planting his potatoes he dissolved one pint of tar in three pails of boiling water, and added four pails of water afterward. This solution he poured over his seed and mixed it with them, and covered with plaster.

The Twist of Trees in the Direction of the Sun.—A correspondent of the *Scientific American* says:—"It seems to be a new idea to you that the twist of trees generally turns in the same direction as the sun. My observation has been more particularly upon pines. Chip a pine at the stump height, and if it twists or winds with the sun, leave it, for it will not do for shingles; the higher up you try it, the more you will find it to wind. On the contrary, if it winds against the course of the sun, the twist will run out in some ten feet, and the grain then either continues straight to the remainder of the length, or, perhaps, even turns and winds with the sun, near the top of the tree. This is a fact which is no less true than curious."

The Universal Metamorphosis.—If a wafer be laid on a surface of polished metal, which is then breathed upon, and if, when the moisture of the breath has evaporated, the wafer be shaken off, we shall find that the whole polished surface is not as it was before, although our senses can detect no difference; for if we breathe again upon it the surface will be moist everywhere except on the spot previously sheltered by the wafer, which will now appear as a spectral image on the surface. Again and again we breathe, and the moisture evaporates, but still the spectral wafer reappears. This experiment succeeds after a lapse of many months, if the metal be carefully put aside where its surface cannot be disturbed. If a sheet of paper on which a key has been laid be exposed for some minutes to the sunshine, and then instantaneously viewed in the dark, the key being removed, a fading spectre of the key will be visible. Let this paper be put aside for many months where nothing can disturb it, and then in darkness be laid on a plate of hot metal—the spectre of the key will again appear. In the case of bodies more phosphorescent than paper, the spectres of many different objects which may have been laid on it in succession will, on warming, emerge in their proper order. This is equally true of our bodies and of our minds. We are involved in the universal metamorphosis. Nothing leaves us wholly as it found us. Every man we meet, every book we read, every picture or landscape we see, every word or tone we hear, mingles with our being and modifies it. There are cases on record of ignorant women, in states of insanity, uttering Greek and Hebrew phrases, which in past years they have heard their masters utter, without, of course, comprehending them. These tones had long been forgotten; the traces were so faint that, under ordinary conditions, they were invisible; but these traces were there, and in the intense light of cerebral excitement they started into prominence, just as the spectral image of the key started into sight on the application of heat. It is thus with all the influences to which we are subjected.—*Cornhill Magazine.*

Drunkenness in Wine-growing Countries.—In Europe you see many things which seem strange to an American. Take the use of wine. If I am right, the Europeans consume about 6,500,000 gallons of wine. In France, leave out of account the pasture land which is not ploughed, and the forests, of the actual arable land one-third is devoted to the culture of the grape. Yet there are immense districts where no wine can be raised at all. I see it stated that the government returns make it appear that the people of France drink 850,000,000 gallons of wine, and the calculation is that the amount is not much less than 1,000,000,000! Yet I don't believe, in the year 1859, there was so much drunkenness among the 39,000,000 people of France as among the 3,000,000 of Yankees in New England! I have been four months at Rome; there are wine shops everywhere, I am out doors from three to six hours a day, and I have never yet seen a man drunk; now and then one is merry, never intoxicated. The Romans, Italians, French, &c., are quite temperate; they drink their weak wine with water, and when they take liquors, it is only a little glass at a time (which does not make a spoonful.) I don't believe there's a bar in all Italy where men step

up and drink rum and water, gin and water, &c. Excessive drinking is not to the taste of the people. In the north of Europe, and even in Switzerland, it is not so. The English, without help from the Irish and Scotch, drink about 600 or 700,000,000 gallons of beer every year, not to speak of the wine, spirits, &c., they take to wash it down withal. There is drunkenness. So you find it in Scandinavia, in Holland, in North Germany. How do you think the Americans will settle the question? Certainly not by taking merely to water, tea, coffee, &c. We shall have more beer, perhaps, return to the making of cider, and certainly plant vines where they will grow. Drunkenness is such a monstrous and ghastly evil, I would do almost anything to get rid of it. But I sometimes think we have taken the wrong track. I am glad to see the License law introduced to the New York Legislature, and think it will do more good than our New England scheme of prohibition by force.—*Letter from an American in Europe.*

Lazy.—A popular preacher tells a good story as a hit at those kind of preachers who are too indolent to pursue the duties required of them by their faith. He says that one pious gentleman composed a very fervent prayer to the Almighty, wrote it very legibly, and affixed the manuscript to his bed post. Then, on cold nights, he merely pointed to the document, and, with the words, 'O Lord! them's my sentiments!' blew out the light and nestled amid the blankets.

A Relic of the Past.—An English paper says that James Cooper, who was coachman and general attendant of the first Napoleon in St. Helena, is yet alive, and, in his eightieth year, is living at Plumstead. He has no pension, and has to struggle hard "to keep the wolf from the door."

Alex. Dolson, Esq., of Raleigh, County of Kent, threshed 583 bushels of wheat off 13 acres; this gives an average of forty-five bushels.

New Way of Tying Horses.—Travellers on the western prairies, who can find no trees or fences to hold their horses, may, perhaps, learn something from the ingenuity of the Icelanders in a similar emergency:—The Icelanders have a most curious custom, and a most effectual one, of preventing horses from straying, which, I believe, is entirely peculiar to this island. Two gentlemen, for instance, are riding together without attendants; and wishing to alight for the purpose of visiting some object at a distance from the road, they tied the head of one horse to the tail of the other, and the head of this to the tail of the former. In this state it is utterly impossible that they can move on, either backward or forward, the one pulling the one way and the other the other; and, therefore, if disposed to move at all, it will be only in a circle, and even then, there must be an agreement to turn their heads the same way.

Letter from the late Sir R. Peel to Chevalier Bunsen.—The following letter, which was addressed twenty years ago by Sir Robert Peel to Chevalier Bunsen, is published in a biography of the great statesman, written by Herr Kunzel: "My dear Herr Bunsen,—The only purpose of this is to invite you to dine with me and Herr Cornelius on Friday next. I assure you that whatever attention I may have paid to this distinguished artist, I am abundantly rewarded by the satisfaction which I derive from his personal acquaintance. He is one of a noble people, distinguished alike in every art of war and peace. The ultimate union and the patriotism of this people, spread as it is over the centre of Europe, will offer the best guarantee for the peace of the world, and the most powerful check for the propagation of doctrines, pernicious alike to the cause of religion and order, and to that freedom which respects the rights of others. It is my earnest hope that every member of the illustrious race, while he loves the country of his birth, will extend his devotion beyond its frontiers, and pride himself upon the name of a German, acknowledging the common fatherland to be entitled to the love, affection, and patriotic exertion of all its sons. The sentiments of every German are, I hope, correctly estimated by me, when judged from those awakened in my breast—the breast of a stranger and a foreigner—by a simple song, which seems to concentrate within itself the will of a powerful nation—a song which proclaims in enthusiastic words—

'That they shall have it,
The free German Rhine!'

No, they shall not have it, and the Rhine will be protected by a song so long as the feelings inspired by that song are glowing in every Teutonic heart. But you will believe me a regular German if I go on in this way. If cordial wishes for the union and welfare of the race can give me a title to that name, I am one. Believe me, my dear Herr Bunsen, &c,—Robert Peel."

Editorial Notices.

Our Last Number.—We regret the delay which occurred in the issuing of our last number. It was owing to the paper maker having, by an oversight which we had no reason to anticipate, failed to supply the proper quantity of paper. The delay in issuing the last number, together with the intervening of the Provincial Exhibition, has also caused some delay in the appearance of the present number.

Addington Agricultural Society.—The annual exhibition of the County of Addington Agricultural Society for 1860, will be held in the village of Newburgh, on Tuesday, October 9th. J. B. Aylsworth, Secretary.

Markets.

TORONTO MARKETS.

THURSDAY, Sept. 15, 1860.

To-day the Wheat market still showed signs of decline, and upwards of 4,000 bshls changed hands at $1 20, that being the current figure of the day—the range extending from that to $1 16. The average price for the day was $1 19 per bushel. There has not been much buoyancy on the market. Barley—was very active although a little easier at 68 to 71c, the current rate being 70c per bushel. Spring Wheat—was hardly so brisk, and $1 was the prevalent figure for the ordinary sample. Peas—in good request at 60 to 63c, sometimes 65c per bush. Oats—are steady at 28 to 30c per bush. Other things are unchanged.

NEW YORK MARKETS.

NEW YORK, Sept 15.

FLOUR—Heavy and 5 to 10c lower; sales, 19,000 brls at $5 12½ to $5 20 for superfine State; $5 35 to $5 50 for extra State, $5 12 to $5 20 for superfine Western; $5 40 to $5 65 for common to medium extra Western; $5 50 to $5 70 for inferior to good shipping brands extra round hoop Ohio.

CANADIAN FLOUR—Dull and drooping: sales 350 brls at $5 40 to $7 50 for extra.

RYE FLOUR—Steady at $3 50 to $4 40.

WHEAT—A shade firmer with a moderate export demand, chiefly to complete freight engagements and to fill old orders previous to the arrival of the Europa's mails; sales 50,000 bshls at $1 17 to $1 19 for Chicago Spring; $1 23 for Milwaukie Club; $1 27 to $1 30 for Winter red Western; $1 30 for red State; $1 32 to $1 40 for white Ohio and Indiana.

RYE—Quiet at 78 to 80c.

BARLEY—Scarce and firm; sales 1,500 bshls of Canada East at 85c.

CORN—Better with very limited offerings; sales 21,000 bshls at 67 to 68c.

OATS—Heavy and lower; sales at 37 to 39c for Western, Canadian and State.

PORK—Firmer for mess; sales 1,100 brls at $19 for old mess; $19 10 to 19 30 for new mess; $13 25 for old prime; $14 to $14 30 for new.

BEEF—Steady; sales 250 brls.

LARD—Dull; sales 300 brls at 12 to 13¼c.

BUTTER—In fair request at 12½ to 16c for Ohio; 15 to 20c for State.

BUFFALO MARKETS.

BUFFALO, Sept. 15.

WHEAT—Closed firm and no sales after Eastern despatch; sales 12,000 bshls of new Chicago Spring at $1; 11,000 bshls choice do $1 01; 5,800 bshls red Winter at $1 12

CORN—Quiet and no sales.

OATS—Steady.

BARLEY—Firm; sales 2,000 bshls at 75c.

PROVINCIAL EXHIBITION,

TO BE HELD AT

HAMILTON,

ON THE

18th, 19th, 20th & 21st SEPTEMBER, 1860.

Entries of articles for Exhibition, except of Horticultural Products, Ladies' Work and Foreign Products, must be forwarded to the Secretary's Office, Toronto, on or before September 1st.

Horticultural Products, &c., may be entered till the evening of Monday, 17th, when the books will be closed.

Entries, as above stated, will be received at Toronto, till the evening of Friday, September 14th, and afterwards at Hamilton.

Prize Lists and Printed forms of Entry, containing full information, may be obtained of the Secretaries of Agricultural Societies, or Mechanics' Institutes, throughout the Province.

Articles for Exhibition must be placed in the Crystal Palace, or on the Grounds, on Monday, 17th, except Live Stock, which must be there not later than Tuesday, at noon.

Exhibitors must themselves provide for the forwarding of their articles, and placing them in the grounds.

HUGH C. THOMSON,
Secretary Board of Agriculture.

BOARD OF AGRICULTURE OFFICE,
Toronto, August 24, 1860.

AYRSHIRE CATTLE—Patrick R. Wright, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale are liberal.

Full Pedigree of all animals—U. C. Stock Register.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed by Thompson & Co., 77 King, Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten orders and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

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JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, OCTOBER 1, 1860. No. 19.

Farm Yard Manure.

Few subjects deserve greater consideration at the hands of Canadian farmers than the advantageous management and application of farm yard manure. Many thousands of pounds are annually lost from ignorance or neglect of these important matters. Professor Voelcker, the consulting chemist of the Royal Agricultural Society of England, a short time since went into some laborious investigations respecting the composition of this kind of manure, and the changes and deterioration to which it is ordinarily subjected. His experiments were made upon considerable quantities, treated in different manners, for the purpose of observing the changes it undergoes; and great care appears to have been exercised in all the operations, and particularly in selecting samples for analysis. From these investigations it would appear that the great loss to which farm yard manure is subject is not so much from evaporation of ammonia into the air, as has hitherto been commonly supposed, but chiefly *from the action of rain washing out the soluble matter.* The loss of ammonia by exposure, unless the mass is subjected to a considerable degree of fermentation, appears to be in reality very small. The following table, giving the composition in pounds of an experimental heap of manure at four different periods, will afford the reader some idea of the changes which occur:—

	Put up Nov. 3d, 1854.	April 30, 1855.	August 23rd.	November 15.
Weight of manure in lbs	2838.	2026.	1994.	1974.
Water	1877.9	1336.1	1505 3	1466.5
Dry Matter	960.1	689.9	488.7	507.5
Soluble organic matter.	70.38	86.51	58.83	54.04
Soluble inorganic matter	43.71	57 88	39.16	36.89
Insoluble organic matter	731.07	389.74	243.22	214.92
Insoluble inorganic matter	114.94	155 77	147.49	201.65
	960 1	689.9	488.7	507.5
Total nitrogen	18.23	18.14	13.14	13.03
Equal to ammonia	22.14	22.04	15.96	15 75

It is to be observed that, during the first six months, although the weight of the manure largely diminished, the loss was almost exclusively confined to the insoluble organic matter; while the soluble matter had increased, and the ammonia remained undiminished. But during the hot summer weather all the most valuable matters had undergone diminution.

Many important and elaborate analyses made by Dr. Voelcker, show the composition of the dung when treated under different systems. The conclusions to which they lead are these:— Farm yard manure in its fresh state contains but a small quantity of ammonia, most of its nitrogen being there as insoluble nitrogenous matter. But as the decomposition advances the ammonia increases, and a quantity of organic matters become soluble. For this reason the manure

should be preserved in such a manner as to prevent the escape of the soluble portions, which are the most valuable. This can be effected by keeping it in water-tight pits, or under cover; but, in the latter case, the manure, particularly if it contain a large proportion of litter, is not sufficiently moist to admit of its ready fermentation, and water must be added in sufficient quantity to promote that change. The worst of all modes of keeping manure is to pile it in heaps in the corners of the fields, for under such circumstances it is most liable to loss; and if the manure must be carted out, it is better to spread it upon the soil at once, because when this is done, fermentation is stopped and there is very little free ammonia, the loss is small, and the soluble matters are uniformly washed into the soil by the rain. Dr. Voelcker is of opinion that the most advantageous mode of applying the manure would be in all cases to leave it on the surface to be washed into the soil, by which means its distribution is more uniform than if it be ploughed in. The most disadvantageous mode of making manure is to produce it by cattle in open yards, for in this way at least two-thirds of the valuable matters are lost after a year's exposure.

Editorial Correspondence.

(No. 7.)

London, August 29, 1860.

THE HIGHLAND SOCIETY'S EXHIBITION AT DUMFRIES.

In my last I gave a general description of the live stock department of this national exhibition, reserving for a future communication some account of the implements and machines. Constant travelling and a pressure of engagements have prevented me from doing this till the present.

The number of entries in the implement department of the Scottish Show reached nearly a thousand. These were arranged under separate sections, a method very convenient and advantageous to the visitors, but not, as I understood, altogether approved by the manufacturers; any of whom exhibiting a number of different implements had their productions scattered over the show yard. In the English Society's grounds, each manufacturer had his own distinct stand, where all that he exhibited was arranged together, and protected from the weather in long ranges of neatly covered sheds. The Highland Society has a better and more convenient classification, but provides no protection, the articles being exposed in groups in the open air. A number of articles however were exhibited in "General Collections," but in competing for premiums each article had to be shown in its respective section. The readiest way, perhaps, of giving the reader a definite notion of the nature and extent of this important department of the show, will be a statement of the number of implements entered in the different sections.

In section 1, comprising two-horse Ploughs for general purposes, there were 28 entries. Trench or deep furrow ploughs, 5; Sub-soil ploughs for two horses, 2; do. for three or four horses, 2; Double mould-board ploughs, 14; Ribbing Ploughs, 2; two-horse grubbers or cultivators, 15; Norwegian harrows or pulverising land rollers, 6; Consolidating land rollers, 13; Land pressers, 4; Ribbing machines, 2; Harrows for heavy land, 14; Harrows for light land, 20; Harrows for covering grass seeds, 12; Common swing-trees, 10; Equalizing swing-trees for more than two horses, 9; Broadcast sowing machines for grain, 8; Drill-Sowing machines for grain, 6; Sowing machines for grass seed, 5; Sowing machines for turnips, 16; Sowing machines for turnips with manure, 2; Dibbling or drop-sowing machines with manure, 1; Sowing machines for mangold, 8; Sowing machines for carrots, 1; Three-row sowing machines for beans, 2; One-row do for beans, 2; Machines for pulverising guano, 7; Machines for distributing guano in drills or broadcast, 2; Liquid manure distributing machines, 2; Horse-hoes for drilled grain crops, 3; Horse-hoes for green crops, 22; Machines for singling turnips, 1; Machines for raising potatoes, 2; Scythes for general purposes, 3; Reaping machines, self delivery, 7; Reaping machines, manual delivery, 15; Horse stubble or hay rakes, 10; Threshing machines for two or more horses, 8; Threshing machines with steam power, 6; Fanners, or machines for minnowing grain, 11; Fanners, or other machines for cleaning grass seeds, 2; Weighing machines for grain, 5; Weighing machines, indicating from one pound to two tons, 16; Straw cutters for hand labor, 18; Straw cutters for power, 10; Turnip cutters for cattle, 11; Turnip cutters for sheep, 7; Turnip cutters for sheep, attachable to a cart, 4; Ma-

chines for pulping turnips and roots, 12; Root washers, 4; Linseed bruisers for hand labor, 4; Oil-cake breakers for hand labor, 14; Grain grinders or bruisers for power, 10; Steaming apparatus for cattle food, 6; Feeding troughs for byres, 3; Feeding troughs for sheep, 5; Sheep fodder racks, 4; Churns worked by hand, 13; Churns worked by power, 3; Cheese presses, 13; sets of dairy utensils, 2; one-horse carts, with harvest frames, 14; Harvest carts, 4; Light spring carts, 6; Drags, for carts, 14; Wheelbarrows of malleable iron, 4; Barrows for conveying cooked food for cattle, 6; Division racks and mangers for farm stables, 4; Farm harness, 2; Stack pillars, with frame work, 3; Field gates, constructed entirely of iron, 2; Field gates not constructed entirely of iron, 2; Iron hurdles for cattle fence, 2; Iron netting, for sheep fence; Wooden hurdles, or other fencing for sheep, 2; Pipe or drain tile machines for hand or power, 3; Pipes for conveying water under pressure, 2; Tiles and pipes for field drainage, 5; Glazed socketed pipes for sewerage, 3; Tools for cutting field drains, 2; Tools for cutting open drains in hill pastures, 2; General collections of implements and machines, 23; extra implements and machines, 67.

It will be seen from the preceding analysis that the exhibition embraced nearly or quite all the implements and machines that belong to the present improved condition of British husbandry. In the more heavy and expensive machinery the show was somewhat deficient, but the ordinary implements of the farm were well represented, characterised by simplicity of construction, good workmanship and moderate prices. There was an entire absence of steam ploughs and cultivators, which imparted so interesting and valuable a feature to the English and Irish shows. There are at present, I understood, only two of Fowler's steam ploughs, and one of Smith's steam cultivators, in use, in Scotland. The practicability and desirableness of employing steam as a motive power in field culture have now become to be very generally acknowledged, and very important changes in this department of rural labor will evidently take place, before many years elapse. Deeper and more economical cultivation, thorough drainage, discriminate manuring and alternation of crops, with continued improvement in the various breeds of live stock, constitute the enduring basis of the advancing condition of British Agriculture.

A trial of ploughs and other implements took place in a field near the show ground, but apart from the assistance thus afforded the Judges, I am not aware of any very definite or important results having been obtained. An opinion was pretty generally expressed that the English wheel ploughs were not easily held; arising most probably from want of practice in the ploughmen with such implements; as wheel ploughs where they have been fairly introduced are considered more easily managed than any other description. The threshing machines and barn machinery were tried on the show grounds; but in consequence of the very backward state of the grain crops, the practical testing of the reaping machines was very properly deferred for a few weeks. These machines are mostly constructed on principles which are familiar to farmers in Canada and the United States, with more or less of modifications, adapting them to the special conditions of the crops and climate of Britain. It will be recollected that the first reaping machine brought into practical operation was the invention of a Scotch Clergyman, the Rev. P. Bell, whose machine has been greatly modified and improved by an English manufacturer, and many of the most competent judges consider it among the best of its class. Most of the machines, however, were constructed on Hussey's principle, so well understood and appreciated on this side the Atlantic.

I cannot conclude this hurried and imperfect sketch of the Highland Society's Exhibition without acknowledging the kind attention shown me by Mr. Hall Maxwell, the able and indefatigable Secretary, Mr. Robt. Russell, and other members of the Directory. Mr. Russell, it will be remembered by several of the readers of the *Agriculturist*, is the same gentleman who visited our Provincial Exhibition when it was held in London; who spent nearly a year on this continent, and who has written the best book on the agriculture, climate, and resources of North America that ever issued from the British press. I deeply regret that my stay in Scotland was necessarily so very brief, for no part of my travels afforded me greater pleasure, or equal opportunities of gaining valuable information.

I was so fortunate as to be in Edinburgh when Her Majesty reviewed the Scottish Volunteers, in the park attached to the old Palace of Holyrood, where upwards of twenty thousand young men were collected from all parts of Scotland,

the flower and pride of their country, to do homage to a Sovereign who reigns in the hearts of her people, and to show the world their determination to do their utmost to maintain, whenever the hour of peril may arrive, the honor and independence of Great Britain. It was truly a heart stirring scene, indescribable by words; and as such it was evidently felt by more than three hundred thousand delighted spectators! The locality is peculiarly favorable for such a display, beyond, perhaps, any other in the British Islands. Who can doubt that with such a spirit as now animates the great masses of the British people, the dignity of the crown, the rights and happiness of the people and the independence of the nation, will, under the protecting arm of Providence, yet continue to be perpetuated through many coming generations.

G. B.

On Cattle Distemper.

[Having recently had the pleasure of a personal interview with Professor Dick, in Scotland, the subject of the prevalent cattle disease denominated *Pleuro Pneumonia*, which has already shown itself in the State of Massachusetts, naturally came up in conversation. The Professor kindly favored us with a copy of the following article, which appeared in the Transactions of the Highland and Agricultural Society of Scotland, for March 1858. The long experience and high authority of the writer on matters of the greatest interest to stock breeders in all parts of the world, will be considered amply sufficient to justify the insertion of the article entire, in the columns of this journal. We heard while in Europe an expression of opinion by several veterinarians of eminence that the disease which has destroyed so large an amount of cattle, and which has already made its advent on this side the Atlantic, is caused, or at least fatally aggravated, by a want of cleanliness, proper ventilation and shelter, and an adequate supply of nutritious food. The following paper will supply the reader with abundance of material for thought and practical application.—Ed.]

When the report became current that a contagious epizootic had attacked cattle to a great extent throughout the continent of Europe, and was rapidly approaching our shores, my attention was naturally directed to the subject; and, from what I could learn, I came to the conclusion that there was much unnecessary alarm; that the disease would neither prove so formidable nor so dangerous as was supposed; and that if ever it reached this country, it would be more manageable than it was represented to be on the Continent. The alarm was excited by the accounts in the newspapers of the highly contagious character of the disease.

On the first visitation of the cholera, I believe in 1832, while a general opinion prevailed that it was highly contagious, I showed that a similar malady had attacked horses and cattle; I therefore inferred that the disease was an epidèmic, produced by atmospheric causes operating on local influences. The result has proved the correctness of that opinion. Before the Eczema epizootica, or vesicular murrain, which had prevailed on the Continent, made its appearance here, from the description I had read of it, and in consequence of numerous communications from old pupils, I wrote a circular letter on the subject, showing that it was an epizootic, but one of comparatively small moment, and easily curable by a little care, cleanliness, and attention, and that when it did break out in this country, its attacks were very sudden, and indiscriminately affected all the domestic animals except the horse. Although it was found to be troublesome, and required a good deal of attention, it seldom proved fatal, and in those cases in which it did, this arose entirely from inattention and want of cleanliness; so simple, indeed, did it prove, that a veterinary surgeon was seldom called in. Its sudden appearance and rapid subsidence soon proved that it was not propagated by contagion, for when a flock of sheep, or a herd of swine, or a byre full of cattle, was attacked, it generally affected the whole of the animals in a night's time; all seemed attacked at once, the disease being similar to the eruption about our lips from exposure to cold, called Herpes. It occasionally, however, attacked only one side of a byre, and in other cases almost every alternate cow in the byre became affected, while the others escaped. The disease spread over a great part of the country, but after a time gradually disappeared, its chief injury having been throwing back in condition those animals it attacked, and in the case of sheep producing a species of foot-rot, gradually detaching their hoofs.

When pleuro pneumonia followed, it was confidently declared by some that it was the result of the previous murrain, and that it also was highly contagious; very few, however, who have any knowledge of the disease practically, now believe in its contagious character. It has, however, prevailed to a very great extent, and for a number of years, as an epizootic, and I have no doubt will continue for a considerable time, unless proper means are adopted for its prevention. But what, it will be asked, are those means? will not a careful separation of the diseased from the healthy do this? Will not a strict quarantine prevent its being com-

municated to healthy animals? I think not, because it is not, and has not been proved to be, contagious, as I shall endeavour to show. Still the disease prevails to a great extent throughout the country. How, then, is it to be prevented? By attending to the real causes of the disease, and avoiding them. If the disease depended entirely on its contagious nature, the means adopted in Prussia and other Continental countries would speedily extinguish it; but that has not been the case. What, then, are the causes of the disease? They are atmospheric, produced by the want of proper shelter in the field, or confining cattle in exposed situations in severe weather, or the want of proper ventilation and drainage of byres. As the seasons vary, different classes of animals become more susceptible of disease than others, and different forms of disease present themselves in the same class of animals in different seasons. In horses, for example, we have different types of disease; we found last autumn a kind of diabetes very general; while during the previous winter and spring influenza prevailed to a very great extent; in some seasons we find catarrhal fever prevailing, and in others again pneumonia or pleuro pneumonia. Yet curious enough, although pleuro pneumonia has been prevailing so generally throughout the country in cattle for a number of years past, that disease has not been common in horses, but lately has been affecting sheep on Mr. Finnie's farm of Swanston.

Distemper in dogs has also its seasons, and even rabies in various animals occasionally appears as an epizootic. All these have their seasons and localities, more or less extensive, according to local or general influences. They spring into existence from a combination of causes which we frequently cannot recognise, but which are nevertheless the origin of these diseases. In such cases we are very apt to believe that the diseases are produced by a contagion, and think that this at once accounts for the appearance and spreading of the disease. But if contagion is the cause of the disease, whence its origin? It must have at first been generated from some cause or causes other than contagion, and if so, why may not the original causes be in operation, and be the sole means of propagating the disease? Contagionists allow that it must have had an origin, but contend that when once generated it propagates itself by contagion. But why overlook the fact of its being originally generated without contagion? If in one instance, why not in another? and if so, is it not of vast importance to trace out accurately those causes, instead of wasting time and incurring great expense in adopting only means to prevent contagion, when in reality the disease does not arise from that cause? It is a simple and easy explanation to say that the cause of a disease is contagion; taking that for granted on the Continent, the various States attempt to stop the progress of disease by a summary process; they not only destroy the diseased beasts, but all others who may have come in contact with them. But even this they find does not always succeed, as fresh cases constantly occur in other places, and they are likewise destroyed; by these means the apparent mortality of the disease is greatly augmented, all those which are slaughtered being included in the number of the victims. Attempts have been made to show that if the beasts are not killed the disease spreads to a far greater extent; but there are many fallacies in this view of the subject. Would all those that have come in contact with diseased beasts become affected? I contend they would not. The number becoming affected would not be equal to the number destroyed, although, as a greater number would remain alive, a greater number would suffer from the disease as an epizootic.

That atmospheric agency has a powerful influence on man is evident from the prevalence of diarrhœa for two or three months last autumn, while its influence is strikingly exemplified in the sudden and general attack of disease in the potatoes. In the first, the long-continued heat of the season had excited the action of the liver; while the latter, in all probability, was induced by the sudden changes of the weather, the deluging rains, and the surcharged state of the atmosphere with electricity. Neither in the one example nor in the other can the cause be ascribed to contagion. Some may say that diarrhœa is dependent on the food used at that season of the year which may increase the tendency to the disease, and may in some cases excite it; but I think no one will affirm that the potato disease is not dependent on the state of the weather. That pleuro pneumonia and potato-rot are dependent on nearly the same causes is, I think, evident by the fact of their having appeared about the same time, and having varied in intensity nearly in the same proportion.

Some will contend that animals affected with pneumonia must so far produce an effect on other animals standing in the same byres with them, and I have no hesitation in saying, that, in the advanced stages of that disease, where the breath has become obnoxious, and in badly ventilated byres, the noxious breath will so far contaminate the air of the byre as to increase the liability of the others in such unhealthy byres; but place diseased beasts in well-ventilated byres, and it will be found that no infection takes place—in proof of which I may state a case. Nearly four years ago, Mr. Finnie of Swanston had purchased forty oxen, which were put up to feed in pairs, so as to be in contact in one long byre, and were chiefly fed on liquid food. The troughs were made with a slight inclination from one end to the other, in order to save labour by the whole being supplied from the upper end of the troughs, and thus so far the food must have been breathed upon by all the cattle as it passed along. After being put up to feed, some of them began to cough and

fall off their feeding. I was called to see them, and found several slightly attacked with pleuro pneumonia, and advised that they should be sold. In all, twelve became affected out of the forty; but it is a curious fact that, although they were arranged in pairs, no two in the same stall became affected; and although when those that had become affected were sent off, and their places filled up by closing up the ranks with those that remained in the next stalls, without any preparation, and without any more becoming affected, the remaining twenty-eight were kept in the same byre for nine months, until they were sold off fat, and in sound health and condition. As in this case no means were adopted to prevent infection, it must be allowed that if the disease is propagated by contagion, it took no effect in this case. The animals had, perhaps, been exposed to the causes of the disease before being purchased, and although the byre was well-ventilated and kept clean, this was insufficient to prevent the development of the disease in those contaminated, though operating to protect those that were in sound health.

In the year 1848 and early in 1849, Mr. M'Callum, a farmer within 3 miles of Edinburgh who kept a dairy of between 20 and 30 cows, suffered severely from the disease, and notwithstanding everything that I could do it still continued. The byres were badly constructed, being ventilated only by holes at the cow's head, and not drained. I was convinced that nothing but a reconstruction of the byres, with proper ventilation and drainage, would prevent the disease; and having made a statement in writing, which was laid before the proprietors, my suggestions were carried into effect at a considerable expense, and for about 8 years *not a case* occurred, although the disease had never left other byres in the neighbourhood. In the end of 1856, and beginning of 1857, the disease again made its appearance, and I was requested to investigate the cause. I was naturally much disappointed at the recurrence of the disease in a place where my suggestions seemed to have proved so effectual. On visiting the steading, however, I perceived what appeared to me to be the cause. In one of the byres, where I found two cows recently attacked with the disease, there were three large ventilators with luffer-boards on the ridge of the roof; one of these I found had been stuffed up, while the tiles had all been carefully pointed with lime in the end of autumn so as to make the byre more comfortable during winter, and part of the roof towards the ridge, which had formerly been left open between the tiles to increase the ventilation, had been closed. On a level with the floor behind the cows, there were two ventilators, one of which was closed, while the other was by no means so clear as it ought to have been; added to this, the drain had become choked up, and thus the former state of the byre was in a great measure restored. But it is satisfactory to know that since attention has again been directed to the causes, and these removed, scarcely a case has occurred, and those chiefly among the cows at grass—thus, as it were, demonstrating some of the causes of, and the means of preventing, the disease.

I have already stated that exposure in fields without proper shelter may cause the disease. In like manner cows, standing in byres where there are strong currents of air or drafts through them, readily become affected, an example of which occurred about 4 miles south from town. Mr. Bannerman entered to the farm of Muirhouse in 1844: the steading had been recently erected with a byre for 40 cows. In March, 1855, the disease broke out, and by the end of May he lost 24 cows, and during the next six or seven years he lost 150. As the new byres had proved unhealthy, I was requested to visit them, and consider what could be done to check the disease. I found the steading built on a northern acclivity, and the byres exposed to the north and east, the doors opening in these directions, and the windows all round, the consequence of which was that strong draughts of air were almost constantly blowing through the byre, so that a lighted candle was readily blown out. There were no divisions to check these currents, and the place was found to be very unhealthy. I pointed out what I believed to be the cause; and by putting up partitions, dividing the byre into compartments for 16 cows in each, and regulating the ventilation, the disease was checked to the extent that he had only a few to send off, and these, it was considered, had been more or less affected by the state of the byres previous to the alterations. But he further found, that, although much good was affected by the subdivision of the byre, even in that state, when filled, it was not free of the disease, and, having two empty cottages on his farm, he converted them into two byres, and by placing his newly-bought-in cows there for a time, and by not filling up the byres to the full extent, the disease was completely checked, and he is satisfied that, although he lost in all 174 cows, the disease is not contagious. Circumstances having occurred to prevent his being able to attend to his dairy, he has given it up—not, however, from the fear of the disease.

Striking illustrations of a similar kind occurred in the case of Mr. Davidson of Dean Park, who, during the autumn of 1845 and early part of 1846, and again in 1849, lost a great many cows. After I had tried what could be done by medical treatment, combined with temporary improvements and alterations in the byre, I satisfied myself that drafts were at least in a great measure the cause of the disease, and Mr. Davidson at length made such improvements as have entirely prevented it. Mr. Weir, a neighbouring tenant, in consequence of the ventilation not having been carried out in all parts of the steading, lost 150 cows. He had his byres partially ventilated, and the disease was checked, but it has since in some degree returned. In his case there was too

little ventilation. In Mr. Davidson's byres there was too much, very clearly showing, as I have already stated, that the disease arises from exposure to drafts and currents of air, and to a want of proper ventilation and drainage; and as I consider these cases are of importance, as illustrating the causes of the disease, I have requested Mr. Davidson to state in a letter his own account of the cases, which I subjoin. In this statement it will be observed that there are some points which would go to prove that the disease had been communicated by contagion; but in my opinion they have an opposite tendency. It is stated that in 1845 he bought a cow in the Edinburgh market, which turned out to have pleuro pneumonia; that after lingering for *more than six weeks*, without his being aware of the nature of the case, others became affected, and, the disease rapidly spreading through his cows, in three weeks thereafter they were all affected. This, no doubt, at first sight, looks as if the disease had arisen from contagion; but when we consider the length of time the disease had existed in the byre before any effect had been produced, and when it is known that the disease had suddenly increased all over the country at that period, it will at once be seen that a strong degree of doubt is thrown over the subject. Then, again, it will be observed that Mr. Davidson, for the next three years, had had occasional cases. These he considers to be of spontaneous origin; but it is evident that others may infer that, notwithstanding all his precautions, the seeds of the disease had still existed in his byre, and that the disease was only arrested by sending off at once those cows that became affected. And then again, in 1849–50, another diseased beast was introduced into his stock, and the disease after a time spread so rapidly that he was at length induced to try the effect of improved arrangement of the byres, with proper ventilation and drainage; but I shall here allow him to give his own statement of his case.

"Dean Park, Balerno, 11th June, 1857.

Professor Dick.

Dear Sir,—As requested, I proceed to give you the result of the alterations on my byres.

My byre originally was 83 feet long, and 24½ feet wide, inside measurement, and fitted up for 44 cattle, having an opening or bole opposite each double trivace or stall for the purposes of admitting food, light, and air, to the cows from without. The byre stood longitudinally about north-east and south-west, having one door in the front to the south-east, one in the back to the north-west, and one in the end facing the north-east. The roof was closely covered with slates, there was a gangway up the centre of the byre, and the cows stood on each side of it with their heads to the wall. From their being so many openings in the walls, and none in the roof, there were many cross drafts of air; and when the wind blew strongly from the south-west there was a current of air through the whole length of the byre. We had no pleura among our cows previously to 1845; but there were frequent colds, and weeds or inflamed udders, occasional attacks of murrain, and that, too, without any traceable infection. And when any sudden and severe change of weather took place there was an immediate falling off in the supply of their milk—this falling off telling, with almost barometric precision, the change in the atmosphere—and all plainly traceable to the cross currents of air through the byre to which the cows were exposed.

About the year 1845 I bought a cow in Edinburgh market, which turned out to be affected with pleuro pneumonia. It was a lingering case, lasting upwards of six weeks without my being aware of the nature of the disease; and at the end of that period the disease attacked one or two of the other cows, and spread so rapidly that, within other three weeks, every cow I had was affected, and the whole either died or were sold off the premises, as I wished the byre thoroughly cleaned before buying in a new stock.

The byre then stood empty some time, was thoroughly cleaned from the roof to the causeway, and repeatedly washed with hot lime, and chloride of lime. And after I thought all danger of infection was removed, a fresh lot of cows was bought in, not in public markets, but privately, and from stocks known to be healthy; but, notwithstanding all our precautions—and we could trace no cause for infection—we had in the course of the next three years ten or twelve separate cases of pleura; which, however, never spread among the stock, as the diseased animal was at once sold off on the disease showing itself. These occasional cases of pleura, as well as the frequent colds, and weeded udders, to which the cows were then subject, I attribute entirely to the currents of air to which the cows were then exposed in the byre—together with, perhaps, a predisposal of their systems to this disease—as I *knew* it was not communicated by infection.

About the year 1849 I again unfortunately bought a diseased cow, which stood undetected for some considerable time among the rest. Almost every beast I had took the disease, and I lost heavily. After again consulting with you, and trying the effect of a temporary subdivision of the byre by straw partitions as you suggested, I resolved to try the effect of altering and subdividing the byre into four divisions or byres, completely separated from each other by stone partition walls, each byre having one door and one opening window, and the whole being thoroughly ventilated by an opening on each side of the ridge of the roof, and extending the whole length of the roof, through which a constant stream of foul and heated air ascends, and a constant supply of pure and cool air descends, to the manifest comfort of the cattle, and at the same time without exposing them to any cross draughts of air. The drainage was also improved.

Since these byres were so altered we have not had a single case of pleura nor murrain, and very few cases of weeds or inflamed udders, and little fluctuation in the supply of milk from the changes in the weather. For the last eight years a fresh stock of cows has been every year bought in, not in the public market, but out of perhaps twenty different byres, over a wide district of country, and almost every one of them has been sold in prime health and condition.—Yours truly,

GEORGE DAVIDSON."

In the end of October, 1856, from 30 to 40 young cattle, belonging to different farmers, had been grazing during the summer on Irvine common; one of them was seized with pleuro-pneumonia, and died. The owners were afraid of infection, and knew not what to do, as the time had come for taking the cattle home. After consultation, Mr. M'Call, V. S., was requested to examine them; he found them free from disease, and after they had been home not one of them became affected.

In the same month, a person of the name of Campbell, at Irvine, kept three cows; one took the disease, and died; another was seized, but recovered; while the one standing between these two was never affected.

I shall conclude my remarks on the contagion or non-contagion of pleuro-pneumonia by the following communication from Mr. Hunter, who gives his experience on the subject.

"THE HAUGH, 18th November, 1857.

DEAR SIR,—I beg, in accordance with your request, to send you a few notes of my experience of pleuro-pneumonia. The first case I ever saw occurred about 12 years ago in a lot of young cattle of my own breeding. They were grazing in a field by themselves, and had never at any time come into contact with any other stock. Where *infection* could possibly come from, I never could conceive, as at that time the disease was unknown in this district; but one after another was seized at short intervals, till three of them died. The others were kept on, and continued perfectly healthy. The disease made its appearance amongst my feeding-stock in the ensuing winter, and during that and several succeeding seasons I suffered very severely. Curiously enough, my *immediate* neighbours had not a case for a considerable time after it got a footing here, whilst some others, at a few miles distance, were as bad as myself. From all I could observe regarding it, I became convinced that the disease was not infectious, and, acting upon this belief, when many of my neighbours were taking all manner of precautions—whitewashing, &c.—some of them even going so far that they would not enter my courts for fear of carrying infection to their own, I continued to pursue uniformly the same course as I had done before it made its appearance. By and by, in spite of all precautions, it found its way into the other stocks round about, and they suffered as much as my own had done.

I never could say whether court or byre feeding was the more favourable for its development, as it used to skip about from one to the other, up and down, both in a manner altogether inexplicable, sometimes confining its attacks to one lot of cattle, and again wandering, apparently at random, through them all. Whenever a case was observed in the byre, the animal was sent off, and another put in its stall, without previous fumigation, washing, or even removing the turnips the diseased animal had been eating. This I did very frequently, pretty much by way of experiment, and *in no case* could I ever trace any bad effects to having done so. One rather strong case I may mention, which much confirmed me in my practice. In 1846, a lot of cattle suffered so severely at grass that I determined to sell off the remainder, and when buying a lot to replace them, the salesman told me that they belonged to a friend of mine, who was disposing of them because so many of them had gone with disease, and he could not put them into my hands without warning me. Thanking the agent for his candour, I bought the cattle, and put them into a court, with only a wall dividing them from another lot. I had not in either of those two lots a single case of disease. Its visits for some seasons past have been comparatively rare—occasionally a whole winter passing without a case. I generally graze from 30 to 40 cattle at my farm on the Pentlands, and there of late I have had a few cases. This season I bought three lots, which were sent up at different times. One lot of 10 became affected, and four of them were sent off, though grazing in adjoining fields, and occasionally mixed. None of the others showed any symptoms. The shepherd's two cows took decidedly ill, but both recovered. I have now upwards of 80 cattle of various kinds, all of which, with the exception of *one* more out of the 10 above noticed, which has been sent away, have hitherto kept healthy. A small Shetland cow, which has been grazed quite alone all summer, I may mention, was very ill some time ago, but, with some medical treatment, was brought through. I will be glad to find that the preceding proves of any use to you; and if I can furnish any further information, it is heartily at your service."

[To be concluded in next number.]

Artificial Manures.

BY PROF. ANDERSON, GLASGOW UNIVERSITY.

(Continued from page 465.)

Such differences, of course, can only be detected by complete analysis; but if it is merely desired to ascertain whether or not a sample is genuine without determining its exact quality, it is possible to arrive at this information without a complete analysis, and it has been customary to rely on such simple tests, or even to omit altogether any means of ascertaining its purity. Hitherto the general run of Peruvian

guanos, though varying considerably in quality, have all been remarkably free from sand and other foreign matter; and when directly imported analysis has been less important than with other manures, the more especially as differences in quality are not recognised as modifying the price. It is probable, however, that greater attention will require to be paid to this point in future. A case has recently occurred in which a cargo of guano said to be questionably a direct importation from the Chincha Islands was found to contain in some parts as much as 18 per cent. of sand, and only 11 or 12 of ammonia. Should this turn out to be actually the case, then much greater vigilance will be necessary, and no one will in future purchase a Peruvian guano without analysis. The investigation into the case to which I refer is not yet complete; but I understand there is little doubt about the fact, and from circumstances which have come to my knowledge, there is reason to suspect that several similar cargoes have been imported.

Notwithstandlng these differences, however, it must be admitted that Peruvian guano is distinguished from all the other varieties of that name by a certain degree of uniformity, so that, assuming it to be genuine, the chances are that the purchaser receives value for his money. But the case is very different with the other kinds of guano. These differ not only in composition from Peruvian guano, but are obtained in most instances from small and shallow deposits, so that different cargoes, and even different parts of the same cargo, differ to an extraordinary extent. The farmer therefore, can place no reliance on their uniformity, but every cargo requires to be separately examined. Still less can he rely upon the name given them. When we talk of Peruvian guano, we always think of that brought from the Chincha Islands. But Chilian, Patagonian, and Bolivian are names applied to mixtures found at different places along the coast of these countries of even several hundred miles apart, and which have not the slightest resemblance in composition. All other guanos differ from Peruvian in regard to the quantity of ammonia they contain. Peruvian guano, from its having been deposited in the small zone in which rain never falls, retains almost undiminished the ammonia existing in the dung of the bird; but in all other localities rain has produced a greater or less effect upon the manure, causing the more or less complete decomposition of the organic nitrogenous parts, which, along with the soluble mineral matters, is wasted out. It is then possible to have in the samples from different localities the gradual passage from guanos like Peruvian, rich in ammonia, until we arrive at those which have been so long and thoroughly exposed to the weather that little more than traces of that substance remain. In consequence of the removal of these substances, the phosphates have come to be the largest and most important constituent of those guanos, which are commonly distinguished as phosphate guanos. But the difference does not stop here; not only do these guanos often contain a considerable quantity of sand, due no doubt in part to the subjacent sand being sifted along with it when it occurs in thin layers, but they often contain carbonate and sulphate of lime, and sometimes oxide of iron. The mode in which these substances find their way into these guanos is not well understood, because the localities have never been examined by scientific men; but they are not adulterations, that is to say, they have not been deliberately added to the guanos, although of course they necessarily diminish their value. The composition of guanos other than Peruvian is so variable that I shall not fatigue you with reference to numerical details. I shall content myself with observing that the analysis of such guanos are made out in exactly the same manner as that of Peruvian, with the addition, however, of the constituents which they often contain. In reading the analysis, reference must in the first instance be made to those substances, and their amount, together with that of the sand and water, being added together, you get in the first place the total quantity of worthless matter. In the next place, attention must be directed to the quantity of phosphates; and it is necessary to bear in mind that in guanos of this description from a-half to five-sixths in their value depends upon the quantity of phosphates they contain; while the ammonia, especially in guanos like Saldanha Bay, Patagonian, Chilian, &c., is comparatively unimportant. Little difference is found in the mode of expressing the analyses of guanos, almost all chemists being agreed as to the system to be employed. The only difference is, that occasionally the phosphoric acid in the alkaline salts is written in the body of the analysis; occasionally also the phosphates of lime and magnesia; but such differences cannot occasion any difficulty.

It sometimes happens, however, that analyses are seen with such items as phosphate and carbonate of lime, sulphates of lime, potash and soda. The analyses with such heterogeneous items should be unhesitatingly rejected. They are entirely worthless, and in place of affording the means of forming an estimate of the value of the manure, are only calculated to mislead and confuse the purchaser. When we turn to the analysis of a super-phosphate, many questions present themselves to us for consideration, dependent on the fact that these are manufactured manures, and that their composition depends to a great extent on the nature of the materials employed in making them. It will be understood that the term super-phosphate was originally applied to a mixture of common bones and sulphuric acid, and therefore strictly merited the name of dissolved bones originally applied to it. The introduction of coprolites, and more recently of apatite and various other phosphates, has rendered the wider designation necessary. The use of these substances has also entailed further differences in the mode of manufacture, sulphate of ammonia, flesh, fish, offal, and vari-

ous other animal substances being used to supply the nitrogen in which these materials are deficient. The consequence of this is that the greatest possible differences exist in the composition of this manure, so much so that the product of no two manufactures is exactly alike, and very often owing to variations in the quality and quantity of the different raw materials, dictated of course by economic considerations, samples obtained at different times from the same manufacturer show a remarkable want of uniformity. The difficulty of understanding the analyses is necessarily enhanced by these differences, and still more by the discrepancies which exist in the mode of stating the results used by different individuals, which are very great, and, as I believe, the cause of much misapprehension. In order to render the analysis of a superphosphate intelligible, it is necessary to explain that in the bones and all other similar substances the phosphoric acid is in combination with lime, and the combination is entirely insoluble in water. But there exists another compound of these substances, containing only the third of the lime, which is exceedingly soluble in water, and which is commonly known by the name of biphosphate of lime. When, therefore, two-thirds of the lime is removed from the former, it is converted into the latter, and this is effected by means of sulphuric acid, which, by its superior attraction for lime, withdraws it from the phosphoric acid and forms with it a quantity of sulphate of lime or gypsum. We find also by actual experiment that 100 parts of the ordinary bone phosphate of lime contain 46 of phosphoric acid, and by removal of the lime it is converted into 64 parts of biphosphate of lime, still containing all the phosphoric acid, the difference in weight being due to the abstraction of the valueless lime, which along with sulphuric acid has produced 110 parts of gypsum. By the addition of a proper proportion of acid to bones or any other raw material the whole of the phosphates might be converted into this compound, but practically great difficulties are encountered in doing so, and in the case of raw bones it cannot be accomplished. Nor is this a matter of much moment, because experience has taught us that it is not desirable to do so, but that it is preferable to have a proportion of the phosphates in their original insoluble state. It will be understood from what has been said, that in the act of making the phosphoric acid soluble a quantity of sulphate of lime is produced and it is important to notice this point, because it is very commonly believed by farmers that the sulphate of lime which forms so large a constituent of all superphosphates is deliberately added to them by the manufacturer. This, however, is a mistake. I believe sulphate of lime is very rarely added to a superphosphate, and that the efforts of the manufacturer are devoted to keeping it down as much as possible, because it is well known that a large proportion of it excites suspicion and distrust on the part of the farmer. It has been already said that it is impossible to obtain any great quantity of superphosphate of lime without at the same time producing 1½ times as much gypsum, but in practice the proportion is generally much larger than this, because almost all the raw materials employed in the manufacture contain a considerable quantity of carbonate of lime or chalk, which by the action of the acid is also converted into sulphate. This is particularly the case with coprolites, and the consequence is that it is far from uncommon to find the gypsum 2 or 3 times as large as the biphosphate.

The learned Professor then referred to the valuation of manures; he said—The best method of deducing from the analysis of a manure, a fair estimate of its money value is a practical problem of much importance, which has attracted the attention of many persons and several of these differing in detail though similar in principle, have been contrived. The difficulty which attends the contrivance of a system which shall be altogether beyond cavil, and on which all persons can be at one, lies in the complex nature of most manures, and the number of different factors of which their value is made up. In the case of a substance such as sulphate of ammonia or nitrate of soda which has a definite market price, the value of different samples is easily and clearly ascertained, and the deduction now made for any given amount of impurity is estimated in a manner which requires no explanation. But when a substance is of complex constitution and owes its value to several different constituents, it is necessary to have a separate estimate for each of these, which must be deduced from the commercial value not of this particular complex mixture but from that of other substances of which each of the valuable constituents is met with separately. Now it so happens that the commercial value of different substances is not estimated solely by considerations of composition, but questions of demand and supply and applicability to various purposes have an important influence. Thus, for example, a coprolite containing about 60 per cent of phosphates sells for £3 10s. a ton, while a purely phosphatic guano containing the same quantity brings from £6 to £7, in other words, the phosphates in such a guano bring nearly twice the price they would do in coprolites, and the reason is obvious: in the one case they are in a condition such as to admit of their direct application to the soil, while in the other they must first undergo an expensive preparation. In the same way if our inquiry was the price of bone ash, we find the value of the phosphates intermediate between that of coprolites and guano; nay, if we go further and inquire into the market price of different kinds of guano we find that the rates of the phosphates contained in them differ to a very extraordinary extent. This is due in part to the fact that the price charged for any article is estimated commercially at such a rate as to cover the expense of freight and other charges and to leave a profit to the dealer, and it is to

be assumed that the purchaser will not pay these prices unless he on the other hand has satisfied himself that he also can clear a profit from the transaction, and partly also to the carelessness with which manures are often purchased and the want of careful comparison of the relative profits derived from different substances. Another element which must also be considered, we have already referred to, in the state of division of the substance, the extent to which its different constituents are available to the plant, the facility with which it can be applied to the soil, &c. These considerations are of great importance where many different substances are compared, but they are not likely to be of much moment in the case of strictly analogous substances, such, for exemple, as two different kinds of guano belonging to the same class, and it must be admitted that in these cases no good ground for the difference in the prices given can be shown, and it would in all probabillity disappear if more attention were paid to the results obtained in the field. The more minutely the subject is inquired into the more obvious does it become that no system of valuation can be made perfectly general, but that each individual kind of manure requires a plan suited to itself alone. This, however, involves such difficulties and complications that an attempt has been made to form a general system which, though not absolutely correct,is a sufficient approximation, and, at least, a satisfactory guide to the relative values of these sulphates. In purchasing a manure the substances which are of actual value are ammonia, insoluble phosphates, soluble phosphates, sulphate of lime, nitric acid (as nitrate of soda), potash, soda, and organic matter. These different substances in their substances differ greatly in value. Ammonia and the phosphates soluble and insoluble are costly, and by far the greater part of the value of all the common manufactured manures depends on them. Potash also sells at a high price, but it is rarely found in manufactured manures, and never in sufficient quantity to influence their price, and it is not customary to take it into consideration except in particular cases. The alkali most commonly found in artificial manures is soda, and when alkaline salts are stated in an analysis, they must be assumed to consist almost entirely of that substance, and be valued accordingly. Sulphate of lime and organic matter, though abundant constituents of most manures, add but little to their value, and some persons do not include them in their estimate, although the more common practice is to make a small allowance for them. In order to obtain a fair value for each of these substances, it is necessary to ascertain the commercial prices of each separately. This, however, cannot be done in all cases, and it is necessary sometimes to arrive at it by an indirect process, in the manner which will be afterwards explained. The question we have to solve is the price actually paid for a ton of each of these substance in a pure state, and we shall consider each in succession. Insoluble phosphates are purchased in several different forms. Coprolites ground to a fine powder and containing 58 per cent. of phosphates sell at £2 12s. per ton, and a ton of pure phosphates is consequently sold for £4 8s. In this state, however, the price is extremely low, because it is alleged that the phosphates are in so compact a condition that the plant cannot avail itself of them, and they are only used as a raw material for the manufacture of superphosphates. Bone ash, containing 70 per cent. of phosphates, costs £4 10s. per ton, and pure phosphates in this form are therefore sold at £6 8s. These are the principal forms in which phosphates are sold alone, but it is possible to calculate the value they bear in bones by deducting that of the ammonia they yield from their price, and assuming the remainder to refund the price paid for the phosphates; a similar course may be adopted with phosphatic guanos, and we then find that a ton of insoluble phosphates is worth in

Coprolites,	£4 10
Bone ash,	6 8
Bones,	7 5
Phosphated guanos,	10

These then are the actual market price, and they differ to a very great extent; and the farmer who purchases a phosphated guano pays for the phosphates much more than he could obtain them for in other forms. This difference is to be attributed to the higher state of division in which they exist in the guano and their consequent accessibility to the plant. We are bound then to estimate the value of phosphates in such guanos at this price, although as ammoniacal guano, such as Peruvian, they are sold at a lower rate, but for all other manures of which lime and bone ash form the basis £7 per ton may be taken as a fair rate and it is that which has been usually adopted, although £8 and even £10 are sometimes assumed as the general price. *Ammonia* is found in commerce in the shape of sulphate of ammonia, which at present sells at from £15 to £15 10s. per ton, and making allowance for the ordinary amount of impurity (5 or 6 per cent.) the price of ammonia in this form is about £63 per ton. By calculating from the price of other substances it appears that the following are the values of ammonia per ton;—

Sulphate of ammonia,	£63
Bones,	61
Peruvian guano,	57

The general average being £60 per ton, which is the price usually adopted. *Sulphate of lime* sells for about £1 per ton, and this value is accordingly always adopted. Considerable doubt exists as to the propriety of allowing any value for the organic matters in manures, because it is supplied in farm yard manure in so large quantity as to make the few pounds contained in an ordinary dressing of artificial manure unimportant. It is customary, however, to sell at from 10s. to £1 per ton, and I shall adopt the lower

estimate. *Alkaline salts*, consisting chiefly of soda, are taken at £1 per ton; and potash at from £20 to £30, the former being the price at which it can be procured in Kelp. *Nitrate of soda* is at present sold at about £14 per ton, or if allowance be made for impurities, the price of the pure salt is about £15. Considerable difficulty attends the estimation of the value of soluble phosphates, because they are not met with in commerce alone or in any form except that of superphosphates, and the price at which they are sold in different varieties of that manure and by different manufacturers varies very greatly. The only course open to us is to endeavour to determine the average price and composition of good superphosphates, and putting the values already determined on all the other constituents, to reckon the difference between that sum and the market price, as the value of the soluble phosphates. I find that throwing out all the inferior samples, in those containing less than 10 per cent. of soluble phosphates, and taking the good only, the average composition of the superphosphates in the market during the present year has been:—

Water,	10.71
Organic matter,	9.33
Biphosphate of lime, equivalent to 19.43 soluble phosphates,	12.45
Insoluble phosphates,	14.78
Sulphates of lime,	45.24
Alkaline salts,	2.11
Sand,	5.38
	100.00
Ammonia,	1.71

It is more difficult to determine the average price at which the manure is sold, but the samples analysed included manures at all prices from £7 per ton up to £10 and in some cases even £10 10s. On the whole it may be assumed that the average price is about £8, and if so, soluble phosphates are sold at £27 19s. per ton. If the inferior samples had been included so as to give one general average, the price would have been still higher. The usual price at which they are estimated is £30 per ton, and £46 16s. for biphosphate of lime, although occasionally the former has been reckoned as low as £25, with a corresponding rate for the latter. All these prices are liable to fluctuation according to the state of the market, and they ought to be varied at different times; but it is obvious that the farmer cannot watch the changes of price so as to do this, and it is much more convenient and safer to adopt a fixed average which can be used for the comparison of different manures. Indeed, if absolute precision were to be aimed at it would be necessary to vary these estimates in different localities, and to some extent also according to the kind of manure. This is particularly the case in regard to the price of soluble phosphates, which is actually fixed by the manufacturers of superphosphates, and in this respect very remarkable differences are observed, for in superphosphates made from pure bones it is by no means uncommon to find the soluble phosphates sold as high as £40 per ton, while in those made from bone ash and acid their price sometimes does not exceed £20. In the same way we find that in soluble phosphates, which in bones and bone ash are sold for about £7 per ton, cost £10 in phosphated guanos, so that a different value must be established for these substances in their different conditions. It may, indeed, be alleged that no such difference is admissable, and that the lowest price should in all cases be assumed; but on the other hand it must be observed that the whole object of adopting a system of valuation at all is as a means of deducing the market price of the article and the values used when applied to an average sample must bring out the average price. Hence when a farmer buys a phosphatic guano at such a price as gives £10 per ton for the phosphates, we are not entitled to say that he has paid too dear, and that he ought to have got them at £7 per ton, the rate at which they are purchased in bones. On the contrary, we are bound to assume that he would not have paid this price for them unless he found it to his advantage, and to make it the basis of the valuation. It is sufficiently obvious that the values of the different substances contained in manures being a matter of deduction, considerable differences must exist in the values attached to them by different individuals, and we therefore give a table shewing the values per ton as adopted by different analysis:—

	Way. £. s.	Voelcker. £. s.	Nesbit. £. s.	Hodges. £. s.	And'r'n £. s.
Ammonia	56 0	60 0	60 0	56 0	60 0
Insoluble phosphates	7 0	10 0	8 0	7 0	7 0
Do. in phosphatic guanos	7 0	10 0	8 0	7 0	10 0
Soluble phosphates	32 13	30 0	24 0	25 0	30 0
Biphosphate of lime	50 3	46 16	37 8	39 0	46 16
Alkaline salts	1 0	1 5	1 0	1 0	1 0
Sulphate of lime	1 0	1 5	1 0	1 0	1 0
Potash	30 16	—	—	20 0	20 0
Nitrate of soda	—	20 0	—	—	16 0
Organic matter	1 0	1 0	1 0	1 10	0 10

The practical application of these values is very simple, and will be readily understood by a few examples. Let us suppose a sample of superphosphates to contain—

Water	12·39
Organic matter	14·11
Biphosphate of lime equivalent to 14.88 soluble phosphates	9·53
Insoluble phosphates	15·13
Sulphate of lime	39·42
Alkaline salts	3·82
Sand	5·60
	100·00
Ammonia	2·10

It is obvious that the percentages must represent the number of tons of each constituent in 100 tons of the manure, and the value is calculated in the following manner:—

14·11	Tons	of organic matter at 10s. per ton,	£7
14·88	"	soluble phosphates at £30 do.	446
15·13	"	insoluble phosphates at £7 do.	105
39·43	"	sulphate of lime at £1 do	39
3·82	"	alkaline salts at £1 do	4
2·10	"	ammonia at £60 per do	128
			£727

Consequently the value of one ton is £7 5s. An average Peruvian guano calculated in the same manner gives—

53·16	Tons	of organic matter, at 10s. per ton	£26
23·48	"	insoluble phosphates, at £7 do	161
5·00	"	phosphate of lime and the alkaline salts, at £30 per do..	150
7·97	"	alkaline salts, at £1 per do...	8
17·00	"	ammonia, at £60 per do.....	1020
		Value of 100 tons.....	£1365

or at the rate of £13 13s. per ton. It appears, therefore, that, as compared with other manures, Peruvian guano is a cheap manure. It must be understood, however, that this system of valuation gives only an approximation to the price, and in estimating it exactly many other matters must be taken into consideration, more especially in the case of manufactured manures. Among these the condition of the manure is of the highest importance. A damp, ill-reduced manure must not be valued at the same rate as a carefully manufactured sample, which has been brought into a high state of division, and the valuator must exercise his judgment in this matter, and diminish or add to the value to such an extent as he may consider right under the circumstances. In the same way the proper adjustment of the relative quantities of the different constituents must be taken into account. Thus, for example, if there be two samples of superphosphate having the following composition,—

	I.	II.
Water.....	12·72	11·83
Organic matter.....	5·66	3·82
Biphosphate of lime	10·77	21·30
Equivalent to soluble phosphates.....	(16·82)	(33·44)
Insoluble phosphates.....	19·21	2·59
Sulphate of lime	48·99	54·13
Alkaline salts.....	0·11	2·23
Sand	2·54	4·10
	100·00	100.00
Ammonia.....	0·32	0·37

If the values of these two manures be calculated according to the plan just laid down. No. 1 is found worth £7 per ton, and No. 2 £11, but probably the value of the last is by no means so high because it is found that the conversion of the whole of the phosphates into a soluble form is not attended with commensurate advantage in a manurial point of view, but that the best results are obtained when a reasonable proportion is left insoluble. In point of fact a manure like No. 2 is sold at from £8 to £8 10s., which may be considered as its proper value. These and similar matters must be borne in mind when selecting a manure, and form an essential element in the estimation of their value, and it must be understood that the per centage valuation must always form the basis of any system used, and it is only modified by these secondary considerations. The necessity of properly apportioning to one another the different constituents of a manure is obviously attracting the attention of manufacturers, and the number of superphosphates made from phosphates alone has recently undergone a considerable diminution, while those of which ammonia forms a large constituent are on the increase. The sum of what I would impress upon this meeting is,—

In the first place the most important matter for you to attend to in purchasing manure is to see that the seller supplies the farmer with an analysis of the manure, stating exactly what its composition is. The farmer, then, after examining this manure and calculating its value, according to the system which I have been explaining, should ascertain whether he receives value for his money, according to the analysis which was given him. He has next to ascertain whether the manure has the composition which the seller professes it has. Now, no reliance can be placed upon the uniformity of manures. In the produce of various manufacturers great differences are observed, and the reason is very obvious and very simple. Manure is a cheap article which will not admit of that amount of expenditure in the shape of labour which insures uniformity. The manufacturer must use a rough-and-ready process, and the consequence is he cannot ensure an absolute and complete uniformity. Even if you take four or five specimens of the same manure by the same manufacturer you will find that it differs very much in its composition; but if you take a small quantity from different bags and mix them all together you get a general average which, being the make of a good manufacturer, will turn out to be tolerably uniform. A sample, therefore, should always be selected from a few different bags, properly mixed together, and also the composition should be determined.

Further, the farmer is to ascertain that the analysis he receives is properly made. This is a point which he cannot be expected to understand for himself. There are no external indications in the analysis which can tell him whether it is rightly or erroneously made. He can judge, however, to a certain extent, in this respect, that all careful chemists ought to have pretty nearly a uniform system; and if he find any mistake he has a right to suppose that the results cannot very much be depended upon. If he attend to all these matters, and if, above all

other considerations, he attend to the character of the individual with whom he deals, he has a chance to secure uniformity; or at all events—which is most important—he should have all his wits about him. The data which I have given you as to the extraordinary consumption of these artificial manures, and the extent to which we are dependent upon them, will show how much the farmers may be misled if they do not take care to use the proper means of arriving at their composition. A reduction, for instance, of 10 per cent. in the value of these manures is equivalent to a sum of £400,000; and you may also readily understand how easy it would be to adulterate an article some 10 or 20 per cent., and the difference never be observed. (Loud applause.)

Entomology.

ADDRESS ON THE CURCULIO AND BLACK KNOT ON PLUM TREES.—BY ASA FITCH, M. D.

Entomologist to the New York State Agricultural Society.

Mr. President and Gentlemen,—The Curculio or Plum weevil and the black-knot excrescences on plum and cherry trees having been prominent in my investigations since I last addressed you, I have thought that these would be as interesting as any subjects I can select, on which to speak at this time. I am the more induced to make the Curculio a prominent topic of the present lecture, since no particular account of this important insect has yet been given in my Reports on Noxious Insects, and may not appear for a while to come, for the reason that I aim to introduce nothing in those reports which has not been authentically ascertained by actual observation, and an important portion of the yearly life of this insect is yet remaining undiscovered and a subject of speculation and conjecture.

I am inclined to rank the Curculio or Plum weevil as the most important and most injurious insect which we have in our country. Although the Wheat midge is at the present period causing a much greater amount of pecuniary loss than this insect, I cannot but think that its career will be analagous to that of its predecessor, the Hessian fly, and that it will therefore in time become so fully naturalized and mastered by its parasitic destroyers, that it will cease to be the formidable evil which it now is. Unlike the Wheat midge, the Curculio is a native insect of our country, which has now been known upwards of a century, during all of which time it appears to have gradually multiplied and increased its forces, without any cessation or interval in its ravages. At first, in the correspondence between the botanists Collinson and Bartram, in the year 1746, it is spoken of as destroying the nectarines in and around the city of Philadelphia, whilst the plums, it is said, were but slightly molested by it. But after a time it took the plums also. As an evidence of its steady progress and increase during the past forty years, I may state the fact, that in my boyhood, the wild plum trees in my own vicinity were often filled with fruit. But, though thrifty trees are still growing in several of the same places, I have never since that time seen a ripened plum upon any of them. And now it has become so multiplied that the plum no longer suffices to accommodate it, and it therefore attacks our cherries and apples also, and a large portion of these are every year blighted and destroyed by it.

As already intimated, this insect and its habit of destroying young plums, has been known in our country for more than a century. And so formidable an evil is it, that communications without number in relation to it, and remedies for its destruction, have appeared in our agricultural periodicals and other publications. You would hence think that everything relating to the habits and economy of this insect has been observed and made known to the public. This, however, is very far from being the case. Notwithstanding the volumes that have been written upon it, we do not to this day know where the Curculio lives and what it is doing during three-quarters of the year. All that is currently known respecting this insect is substantially as follows: That it is a small grayish brown beetle, which makes its appearance on plum trees when the young fruit is about a third or half-grown—cutting a curved or crescent-shaped slit upon the side of this fruit, and dropping an egg into the wound—from which egg a small white worm hatches, which burrows in the fruit, causing it to wilt and fall from the tree—whereupon the worm crawls into the ground, to repose two or three days during its pupa state, when it comes out again, the latter part of July, a beetle like that which six weeks before laid its eggs in the fruit. What becomes of it from this time till the next June is wholly unknown. And that it breeds elsewhere than in the young fruit, though stated by some, is doubted and denied by others.

My own observations lead me to believe that what is currently known and supposed to be the main and essential part of the history of this insect, is in reality but a small part of its history—a mere incidental act—an episode only of its life and operations—and if there was no young fruit whatever, this creature would continue in existence without being sensibly discommoded by the want thereof. I will, therefore, proceed to state the facts relating to this insect, so far as they are at present known to me, and the inferences to which these facts lead me.

First, however, let us notice the insect itself. On taking one of them in hand and closely inspecting it, it is observed to lie perfectly still and motionless as though it were dead, and is seen to be a small, hard, uneven, or knobby beetle, shaped somewhat like a pea, its anterior part being narrower than the main part of its body. It varies greatly in its dimensions, some

of the males or smallest individuals being but half as large as some of the females; its medium size being somewhat less than a quarter of an inch in length. It is of a gray or rusty brown color, varied more or less in different specimens with spots of white, ochre, yellow, and black, in particular showing a shining black spot on the middle of its back with a white spot immediately back of it. Hanging down conspicuously from its forward end, like the trunk of the elephant, is seen a slightly curved beak or bill, of the same length and thickness as the thighs of the legs. This beak is an appendage which belongs to all insects of the weevil kind, and distinguishes them from all the other beetles or hard-shelled insects. Being thus a true weevil, this insect has often been termed the "plum weevil," and it is to be regretted that this has not become its current designation, it being so much more definite and expressive than the name "Curculio," which is merely the Latin synonyme of our English word weevil, and is hence applied in science as the family name of the whole group to which this species pertains.

Next, at what time do these beetles come abroad, and where do we find them? I know not how many articles in our agricultural periodicals I can refer to, reciting the success of different remedies which were applied, "when the Curculio first began to appear"—yet not one of them specifying *the date*, whereby others might know when the time has arrived to look for it.

Undoubtedly to the south of us, in Pennsylvania and Maryland, this, like all other insects, will come abroad somewhat earlier than they do here in New York. And everywhere, they will vary somewhat with the backwardness or forwardness of the season in different years.

In my own vicinity, fifty miles north of Albany, this beetle has been found as early as the beginning of April, though it is not usually met with till about the middle of May; and in a week or ten days afterwards it becomes common. It is then found standing or slowly walking upon the trunk and limbs of the plum, cherry, apple, the wild thorn-apple, the butternut, and doubtless on some other trees—though I name no others, not being certain but it was accidentally present in other situations where I have captured it. The collector of insects will notice that the specimens he finds on butternut trees are always larger in size than those he finds on cultivated fruit trees—indicating that they have been better fed during the larva or growing period of their lives. And from this time onward, till cold weather returns, we continue to find these beetles abroad, the whole season through. Late in autumn, upon the flowers of the golden rod, they may be met with as plenty as at any earlier period of the year.

And next—what do these insects do? As we have just stated, they come abroad in full force, soon after the middle of May; and it is some two or three weeks after this, or about the 10th day of June, that the young fruit becomes sufficiently advanced to answer their purposes. They then fall upon it, to deposit their eggs therein. They are decided epicures, being most fond of the choicest varieties of our fruits; hence the nectarines and all the best kinds of plums are most sure to be destroyed. But, as already stated, their numbers are now so excessively multiplied all over our country, that the plums fail to accommodate but a portion of them. Others, therefore, invade the peaches, pears, apples, and cherries, and others still attack the wild thorn-apples, making the same crescent-shaped wound in all these fruits.

It is in allusion to this crescent-shaped mark that this weevil is frequently termed the "Little Turk"—as it appears to delight in seeing this symbol of Mahometanism everywhere inscribed—as though the little imp was aware how annoying the sight of it is to us "Christian dogs."

This mark is scarcely the tenth of an inch in length, but is very distinctly to be seen wherever it occurs upon the surface of the young fruit. In apples, however, which are quite small and have a thin woolly coating, and are increasing rapidly in size when they receive this wound, it in a few days becomes so dried and healed that it usually appears to the eye as a mere discolored speck, which is probably the reason why it has been so much overlooked in this fruit. This mark is cut by the jaws of the insect, which are exceedingly small, and are placed in the end of the long beak or trunk of which we have spoken. And in addition to this crescent-shaped slit, the Curculio wounds the fruit by drilling holes therein with its beak, resembling punctures made by a coarse pin or needle. One or more of these punctures may be seen upon almost every fruit which it invades. It is probably for feeding upon the juicy pulp of the fruit that the insect bores these small holes in it; and, even where no crescent-shaped slit occurs, these perforations may be noticed, causing hard nurly dents to be formed in the fruit, which would otherwise be smooth and fair.

Usually only one of these crescent marks is made upon a plum or apple, though sometimes two, three, or more may be found. A single egg is dropped in each of these curved slits, and with its beak the insect crowds the egg deeply into the bottom of the wound. From this egg a small white worm or grub hatches, which is destitute of feet, like the larvæ of all the other weevils, and is about four times as long as broad, being thickest in its middle, and with a small, shining, brownish yellow head. This worm penetrates inward to the core of the young fruit, and there feeds around the stone or seeds, excavating quite a large cavity, which is partly filled with small brown grains, the castings of the worm.

From the attack of this worm, the plum, the apple, the pear and peach, wilt and fall to the ground, whilst the cherry and thorn-apple do not wither but continue to grow and ripen, though

so wounded, knotty, and deformed that the fruit is worthless.

And here let us pause for a moment to notice one of those curious paradoxes, with which the student in the works of nature is so frequently meeting.

A person, on being informed that of the two stone fruits, the plum and the cherry, the one perishes and the other lives—of the two pomaceous fruits, the apple and the thorn-apple, the one perishes and the other lives, when invaded by this worm—I say, a person, on being informed of these facts, would at once say: it is the smaller of these fruits, it is the cherry and thorn-apple, that wither and die when attacked by this worm, whilst the larger fruits, the plum and apple, will feel the same injury less, and will survive the wounds that kill the smaller fruits. But lo! exactly the reverse of this is the fact. It is the small cherry and thorn-apple that live and ripen on their stems; it is the large plum and apple, and also the peach and pear, that wither and fall from the tree! And on coming to consider this anomaly more fully, we clearly perceive that it is necessary that these things should be ordered and arranged just as we find them to be. The quantity of pulpy substance in the larger fruits is sufficient to feed the worm within them till it reaches maturity; whereas, should the smaller fruits wither in the same manner, the worm within them would die. It is, therefore, necessary that they should continue to grow, to elaborate the amount of sustenance which the worm requires to bring it to maturity.

But why it is that in these several fruits effects so dissimilar result from the same cause,—these effects, too, exactly the reverse of what we should expect,—we are wholly unable to explain. I can only resolve it into this, that in each of these cases the Author of nature has decreed that it shall be so, and therefore it is so.

Even though in a more advanced state of science the vegetable pathologist should be able to show certain peculiarities in the physical constitution of these trees, whereby it will be explained why it is that the irritation produced by the gnawing of this worm is speedily fatal to the one fruit, and not at all so to the other, it will only carry us one step further back and lead to the inquiry—How came these trees to possess their respective constitutions? Why did not the peculiarities of the cherry happen to be given to the plum, and thus produce a discord instead of that harmony which we now see?

And thus, wherever we fix our look in the wide domain of nature, whatever page we open in her "book of wondrous secrecy," we perceive unmistakeable evidence that, even in all its minutest details, the vast framework of creation has been arranged by a hand that was omnipotent, that hand guided by an intelligence that was infinite.

But to return from this digression. Any person on inspecting a large, thrifty plum tree at the commencement of June, on seeing the profusion of small young fruit which is everywhere interspersed among the leaves, would deem it all but impossible for an insect to devastate that fruit to the extent that the Curculio does. He would think that, here and there, at least, a plum hid among the foliage, or projecting far out upon the ends of the slender twigs, would elude the search of this insect, and thus remain to ripen upon the tree. But I judge from accounts it is the same all over the country that is within the sphere of my own observation; although the trees are perfectly healthy and vigorous, richly clothed with verdure year after year, we never see a ripened plum upon them, except where special care is taken to combat this intruder.

And not only this fruit, but (what many persons are wholly unaware of) a large portion of our apples are also blighted by this same pest. I am persuaded it is one of the principal causes why our orchards as this day are so much less productive than they were half a century ago. To obtain a correct idea of the intolerable evil which this insect is in our country, I hope every one who now hears me, if he has not already particularly noticed the sad spectacle, will bear it in mind next 4th of July, or within a few days of that time, to walk to the plum trees and some of the orchards in his neighbourhood. You will find the ground under many, if not all, the trees literally covered with the wilted young fruit that has fallen from its having been blighted by this insect. Could but a fourth part of what is lying on the ground have remained upon the trees to ripen, it would be such a yield from them as for a cycle of years we have never had and have ceased to expect.

On cutting open these withered plums and apples you will find the same worm in the one as in the other, or, if this worm has left a portion of the fruit, its track will still be seen therein, demonstrating that the falling of the whole of the fruit, from both kinds of trees, has been occasioned by the same cause.

It is during the early part of July that these worms are leaving the fruit and entering the ground. But some are found still quite small, after others have got their growth and evacuated the fruit. Hence a considerable time elapses, two or three weeks probably, during which one and another of these larvæ in the fruit are coming to maturity and entering the ground.

They remain in the ground reposing, in their pupa state, about three weeks. Hence it is during the latter part of July that the most of them complete their transformations, and come out again in their perfect state.

Thus, in from six to eight weeks from the time the egg is deposited, this insect gets its growth, and becomes a beetle of the same kind as its parent.

We thus have these insects completing their transformations and all coming abroad again in their perfect state the latter part of July. But

there is now no young fruit for them to resort to. And the question arises—What do they now do, and what becomes of them from this time till young fruit again appears the following year? Where do they secrete themselves to pass the winter, and in what stage of their lives are they at that time?

Our best authorities at this day give us as their opinion on this subject that some of the larvæ which are retarded in completing their growth, so that they do not leave the fruit and enter the ground till the latter part of July or later, remain in the ground in the pupa state through the autumn and winter, to produce the beetles which appear the following spring. There are so many improbabilities connected with this view of the case, that I am surprised that an author so intelligent on these subjects as was the late Dr. Harris gives countenance to this as his opinion. Let us briefly look at this hypothesis. The temperature of the earth through the month of August is greater, the ground is then warmer, than it is in July. There is no probability, therefore, that an insect whose transformation under ground is completed in three weeks in July can remain in the earth a longer period in the month of August. Least of all is it to be supposed that it can remain there unhatched through all the warm weather of that month and autumn.

Again, we know that nearly the whole generation of these insects that is nurtured in the young fruit reaches maturity and comes abroad the latter part of July. Now, is this vast army of these creatures merely an abortion—brought forth only to perish? Is the existence of this species left to the mere accident of a few individuals happening to be retarded beyond the usual time in entering the ground, and therefore remaining in it till the following spring? This would be an anomaly, wholly unlike anything which we meet with elsewhere in this department of nature's works.

Without stopping to notice other views that have been advanced on this subject, it may be observed that the fact that these insects come abroad in the spring in full force, some three weeks before the young fruit is adapted to their use, and that after the young fruit is gone, they are still abroad as numerous as before, the presumption becomes very strong, that they must have other places for cradling their young, in addition to the fruit. And the enquiry thus arises, whether the Curculio is known to breed elsewhere than in young fruit. To this comes the reply, that there is one other situation in which it is well ascertained they do breed with avidity, to wit, in those singular excrescences on plum and cherry trees, called black-knot. And as the Curculio has so often been said to cause these excrescences, and the opinion is still entertained by many persons that they are produced by some other insect, if not by this, I may here turn aside to give some account of this remarkable disease, since, to ascertain whether it really was caused by an insect or not, I have examined it more closely, perhaps, than had ever been done by any other person.

The black-knot excrescence is a disease peculiar to the plum and cherry trees in this country. It is a large, irregular, black, wart-like excrescence, which grows upon the limbs, causing the death of all the limb above it, and extending down the limb farther and farther every year till the whole branch is destroyed, other limbs at the same time becoming affected in the same manner, and also the limbs of other trees in the vicinity. If it is neglected, it in a few years kills the tree.

This disease commences upon the small limbs, the wood of which is but a year or two old. It is recognised at first by a slight swelling of the bark at a particular point, on the upper side of the limb, which begins in autumn and remains stationary through the winter. When the sap begins to circulate in the spring this swelling increases, rupturing the cuticle or thin outer skin of the bark, and continuing to grow and puff out till in June some inches in length of the limb at the place affected is three or four times its diameter elsewhere. The bark and portion of the wood under the bark are the tissues involved in this disease, both the bark and woody fibres being changed into a spongy substance, but not at all juicy like the fruit of a tree. This spongy substance is of a pale yellow color when growing, changing to coal black when it is mature; and then a minute black fungus plant, resembling the head of a pin, grows upon its surface. You will see, on looking at these black knots, that their whole surface is covered and crowded with little smooth black granules, which are the fungus plant alluded to. They are a species of the genus *Sphæria*, and are described by that profound botanist, the late Rev. L. de Schweinitz, under the name *Sphæria morbosa*. It is a curious fact that the surface of these excrescences, when mature, are always covered with this plant, which never grows, or at least has never been found, in any other situation.

There has been much speculation as to the cause and the true nature of these excresences, they are so unlike anything else with which we are acquainted. Most persons suppose them to be of insect origin. The larvæ of the Curculio are almost always found in them, and these larvæ consume nearly all of the spongy matter of the warts, but do not touch the little fungus growing on their surface, which remains, forming a kind of shell, after the whole inside is devoured. But as these excrescences are sometimes found wholly free from the Curculio larvæ and all other worms, it is obvious they are not the cause of their growth. Others have supposed they were analogous to the galls or swellings which we see on the limbs of oaks and other trees, and have even reported that a gall-fly is to be seen at times on these excrescences. But always in galls, one or more seed-like bodies are found in the centre, in which the young of

the fly producing them is inclosed. Hence I know, from their internal structure, that these are not excrescences of that kind; and what the small fly is that has confirmed some persons in this error, we shall shortly see. Others still have maintained that it was a wound in the bark, made by the puncture of an insect, that caused this disease, some saying the remains of this puncture are often to be seen, when the first slight swelling in the bark begins. Yes, I have seen it. It is exactly as they state. Only it is not the puncture of an insect. It is one of the natural glands or pores in the bark, somewhat altered in its appearance, and rendered more conspicuous in consequence of the swelling. And it gives me the opinion that it is in this pore that the seeds of the disease are planted, or, in other words, the contagion or poisonous matter which cause the disease here finds an entrance to the inner bark, which, thus tainted, begins to swell immediately around this pore.

I will not detain you to notice several other conjectures that have been presented to the public respecting the cause of this disease. Suffice it to say, that having now carefully examined these excrescences, from their first commencement, onward through their subsequent growth, I am prepared to say, with the fullest confidence, that the microscope shows nothing whatever about them, externally or internally, indicating that an insect has anything to do with causing them.

It has also been supposed that these excrescences were a peculiar species of fungus growing upon the limb; and there are some things about them which favor this view. But what is a fungus? To express it in a familiar language—it is a body which grows, and forms its own substance, distinct from and independent of the body in which it takes root, and from which it draws its sustenance. Now these black-knots are not such a growth. They are merely a change in the texture of the natural parts of the limb. And thus we arrive at the conclusion, that these excrescences are not of insect origin, and are not a vegetable fungus, but are properly a disease of these trees, whereby the natural tissues, the bark and wood, become softened and swollen at the places affected.

In many respects this disease appears to be analogous to the cancer in the human body. And the most approved remedy for it is the same as in that disease. It is *excision*. Wherever one of these swellings is discovered upon a limb, the limb should immediately be cut off, so far below the swelling as to be certain we remove every taint of the disease.*

But, to return again to the *Curculio*.

We have the fact well authenticated, that this insect breeds in these black-knot excrescences, with about the same avidity that it does in young fruit—notwithstanding these substances are so unlike each other.

But the black-knots, like the fruit, have become too far advanced towards maturity, by the middle of summer, for these insects to resort to them to deposit their eggs therein. And the question thus returns upon us—What does the whole generation of these insects, which is bred in the fruit, and which comes out of the ground in their perfect state the last of July, now do, when there is neither young fruit, nor black-knots to accommodate them?

Upwards of fifty years ago, Rev. F. V. Melsheimer, who was the best acquainted with insects of any man in our country at that day, stated that the Curculio was bred in the *bark* of peach trees, as well as in the fruit—but without giving any of the circumstances whereby he had learned this fact. And, though no observations in confirmation of this statement have since been made public that I am aware, I am strongly of the opinion that it is correct—and that these insects resort to the bark of different fruit trees to deposit their eggs, when they can find no young fruit to meet their wants.

Four winters since, Mr. L. B. Langworthy, one of the well known nurserymen at Rochester, N. Y., sent me a piece of pear tree limb, to examine a kind of scurf on the bark, which I found to be produced by a minute bark-louse, which I have described under the name of *Aspidiotus furfuras*. As I was passing the magnifying glass over the bark, I detected therein numerous curved incisions, of the same length and shape, with crescent-shaped marks made by the Curculio on the surface of the fruit; and on the convex

* It is worthy of note, that in the discussion which occurred on the close of this lecture, Hon. A. B. Dickinson remarked that the black-knot only attacks trees growing in a wet sub-soil, and if this soil be suitably underdrained, whereby, to adopt his expressive phrase, the trees will not have wet feet, none of these knobs will make their appearance upon them. On casting over in my mind the different localities where I have observed this malady, I am inclined to think it has been most prevalent and inveterate where either the surface or subsoil was of the character stated. But I have noticed some of these knots on thrifty plum trees in the garden of Hon. John H. Boyd, Whitehall, which was originally a naked rock, sufficiently inclined for most perfect drainage, upon which a mellow loam has been drawn, to a depth of two to four feet. A. J. Heermance, Esq., of Rhinebeck, has also communicated to me the history of a frost gage growing more than forty years in his grounds, and which had always been perfectly healthy until six years ago, when the black-knot attacked it. The affected limbs were promptly and perseveringly cut off, but without avail, the disease re-appearing, till the whole tree was finally cut down, and yet last season the vigorous young sprouts from its roots showed the same malady clinging to them. It hence appears that, though there is probably much truth in Mr. Dickinson's theory, it does not embrace the whole truth. The two cases here related, favor the view of Elisha Dorr, Esq., of Albany, that it is a rapid, exuberant growth of the trees that is the foundation of this and several other maladies.

side of these incisions the bark was elevated in a little, smooth, blister-like spot. On opening these spots, a small cavity was there found, situated immediately under the cuticle or outer skin of the bark, in which what appeared to be from four to six minute footless worms or maggots were lying in a row, side by side, their tails towards the slit in the bark, and their mouths at the opposite edge of the cavity, ready to eat their way onwards in the bark, when the warmth of spring returned to awaken them again into life. It was evident that the curved slit in the bark had been cut by an insect, which had dropped a half-dozen eggs therein, the worms from which had fed on the outer layer of the bark directly under the cuticle, all eating in the same direction, and thus excavating the little cavity in which they were lying. They had travelled but little more than the length of their bodies, when cold weather came on to arrest their operations for the time. The worms were so very minute—only 5–100ths of an inch in length—that no opinion could be formed from them as to what insect they were. But the size and shape of the incisions, together with the tree in which they appeared, suggested to me that they were the Curculio, and consequently that this insect commits its eggs to the bark, in which it lies, in its larva state, during the winter, to complete its growth, and produce the beetles which make their appearance the following spring.

I will state one fact more in confirmation of this view, that these insects are reared in the bark. The Curculio is so frequently met with on butter-nut limbs as to render it altogether probable that this tree is as much a favorite abode for it as the plum and apple. And the larger size of the specimens found on the butter-nut, as has already been remarked, indicate that they have been better fed during their larva or growing state. This difference in size is so notable that some collectors have placed such specimens in their cabinets as a distinct species. But, as many other weevils vary in their size to an equal or even greater extent, this cannot be regarded as a valid ground for regarding them as different. Now, as no pulpy succulent fruit or other analogous substance occurs upon the butternut, it is a strong indication that this insect consigns its eggs to the bark of the limbs—which in this tree is remarkably thick and soft, its texture approaching the spongy substance of the black-knots.

Against this view, that the Curculio is nurtured in the bark of trees, and there passes the winter in its larva state, it has been objected, that it is contrary to all analogy to suppose that an insect which feeds on young fruit should also feed on a substance so dissimilar as the bark of trees. But those who make this objection assuredly have but a limited knowledge of the habits of insects, and are unaware how diversified those habits often are, to accord with the different circumstances in which the insect finds itself placed at different times. One of the European insects which is most nearly related to our Curculio, both in its form and in its habit, we are told by Kollar, deposits its eggs in the new shoots of the plum when it cannot find fruit for this purpose. Moreover the dry spongy matter of the black-knot is as much unlike the juicy young fruit as is the bark.

To sum up this subject, then—We see this beetle coming abroad with the first warm days of spring, individual specimens of it being found the last of March; and soon after the middle of May they appear in full force, and continue to be common from that to the end of the season. As it requires but six or eight weeks for the egg to become a mature beetle, there are probably three or more generations of it every year—one individual after another coming to maturity and laying its eggs, whereby a constant succession of new individuals are coming forth, as the old ones disappear, through the whole season. They are committing their eggs to the bark of the different trees to which they resort, we suppose, at all times. And when the young fruit comes forward, its pulp, furnishing a more tender and delicate repast to their young than the bark does, they for a time eagerly resort to it, to deposit their eggs therein. When the cold of autumn arrives it overtakes them in all stages of their growth. Some of the beetles newly hatched, and with their stock of eggs not disposed of, it is probable, crawl under stones and clods of earth, or among fallen leaves, or in the crevices of the bark of trees, and similar sheltered situations, and there lie torpid during the winter, as do many other species of the weevil family, to come out upon the first warm days of March and April. Others, it is probable, when cold weather arrives, have recently entered the ground to pass their pupa state. These pupa will remain in the ground through the winter awaiting the warmth of spring to enable them to complete their transformations. Others still are in their larva state, in all the different stages of their growth, in the bark, as we suppose, and also in late ripening thorn-apples, as we know. I may here state a fact which has not yet been mentioned. After the frosts of autumn have become so severe as to suspend insect life for the season, the ground beneath some of our thorn bushes is found covered with fallen fruit, in which curculio worms are sometimes met with, these worms being then of all sizes. Such worms will, no doubt, remain torpid in the fruit through the winter, and awake to life the following spring, when those that are full grown will probably enter the ground and complete their transformations, and those that are small will probably perish, as the fruit, after having been frozen, will scarcely nourish them onwards to maturity.

In view of the fact that our injurious insects are usually restrained from becoming excessively multiplied by their parasitic destroyers—other insects which are their most inveterate foes—you will be inclined to inquire, Why do not the destroyers of the Curculio fulfil their office

better, and prevent it from being so exceedingly numerous and destructive?

This brings me to remark, that notwithstanding all the observations that have been made upon this insect, no other insect has ever been discovered destroying this species and repressing its numbers, till within the past six months a species of this kind has been brought to light.

To be concluded in next number.

Agricultural Exhibitions.

The season is near at hand when our annual agricultural exhibitions will take place, and it behoves all persons who are engaged in their management, to endeavor to make them conducive to the public good in the highest degree. The original object in the organization of the societies under whose auspices these displays are made, was the improvement of agriculture. Different views may be taken in regard to the meaning to be attached to the word *improvement* in this case, but we understand its leading sense to be the realization of better returns from the cultivation of the earth. This is the primary object, and should be kept constantly in mind.

A departure from this principle has sometimes been defended on the ground that it was necessary in order to "raise money." But is this any better that the old Catholic practice of selling licenses to commit crime, for the good of souls? If displays of "lady (?) equestrianism" are to be instituted for the purpose of drawing a crowd and getting money, why may not races after greased pigs, and the climbing of "slushed poles," be introduced? We might urge stronger objections to the so-called "trials of speed" in horses, as they make the question of merit and value to depend on the trifling point of speed at a short distance, with light weight, and encourage the practice of gambling.

These things tend to attract and engross the minds of people, and by their prominence throw into the background the more useful objects of exhibitions, which only can be legitimately promoted. Hence, like other evils, they produce their natural consequences, and we do not believe that any society ever made anything, in the end, by obtaining money from such sources.

But other things demand attention. Nowhere is the observance of the maxim "The right man in the right place," of more importance than in agricultural exhibitions. It should be observed in filling all the offices, from that of president down to the awarding committees. The injustice or injudiciousness of the awards of premiums, is a frequent source of disaffection. No doubt there are many complaints without reasonable foundation; yet we have good grounds to believe that awards are not always made on a proper basis—not often through wrong motives on the part of committees, but from ignorance of the true principles involved. It should be the object of societies to select men with special reference to what is required—men who know what are their duties, and knowing dare perform them.

Another matter which deserves more attention, is agricultural addresses. As our views on this point have hitherto been pretty fully expressed, we need not now occupy much space with remarks on it. In the selection of persons to deliver these addresses, the idea is too prevalent that a man who will *draw* must be had. The consequence is that in many cases some political aspirant is chosen, who makes a grand flourish, full of sound and flattery, but signifying nothing in regard to agriculture, and worth not one cent to the practical farmer.

On the whole, as the business of so-called agricultural addresses is generally managed in this country, we are inclined to think the public good will be promoted by discontinuing them altogether. They generally occupy time that is of much consequence to the *working* attendants of the exhibition. Sometimes the society is marched in a body through dust or mud (according to the weather) a considerable distance from the show ground and centre of all other business, and after the reading of the important document, marched back again. Why could not all the remarks which it is necessary to make on such occasions, be made at the dinner-table?

And this brings us to the subject of agricultural exhibition dinners, and what belongs to them. Under proper direction, the dinner is a very interesting and agreeable feature of the exhibition, and not devoid of practical advantages. It is advisable to prevent, as far as possible, the interference of the dinner with other business, and on this account it is better to make it a final winding up of the exhibition. The remarks at the table should comprehend everything in the way of speech-making or *addressing* that the occasion requires. And instead of a general address about nothing in particular, would it not be better to have a special *lecture* on some agricultural topic? This would bring out ideas which would be suggestive to farmers in regard to practical improvement.

Speeches at agricultural dinners in our country (or perhaps we should say in *this part* of our country,) are frequently too much on the mutual admiration plan. The speakers, not being able to say anything on agriculture, and feeling flattered by the invitation to show themselves, speak from the fullness of the heart towards those to whom they are indebted. But such personal and often very flat compliments, are poor things to treasure up in the archives of a society professing a utilitarian object.

Another fault is the *length* of speeches. In most instances all that any one has to say may be better said in the space of five or ten minutes than in a longer time. It should be understood that one man is not to waste time and wear the patience of the audience in a half hour's speech which interests nobody but himself. The toasts or sentiments by which it is intended to call out

speakers, should each contain an appropriate point, and the responses *should be to the point.*

Lastly, "let all things be done decently and in *order.*" Let a plan be carefully made for the performance of the business of the exhibition, and let this plan be worked on strictly, unless the elements forbid it. The labors of the occasion are greatly lessened and made more pleasant by being reduced to a simple system.—*Boston Cultivator.*

Remedy for Pleuro-Pneumonia.

A writer in the Philadelphia *North American* says:—

It happened that, on the same day on which I first saw the recent report from Massachusetts, I also received my supply of a medical journal from London, containing a narrative of several cases of the epidemic successfully treated by a surgeon in England, and the means which he found effectual as preventive. His report, after detailing the symptoms and medical treatment of two or three cases, concludes as follows:—"It would be superfluous to narrate every case, as there was a considerable similarity in all; eight were cured, the rest had arsenic every night, and escaped the disease; four died before I was called in." It does not appear that he lost more than one case, and that under circumstances unfavorable to recovery, while he succeeded, as he states, in preventing the outbreak of the disease in all the other cattle, which, it must be conceded, is a very satisfactory amount of success. The remedies employed in the treatment were aconite, bryonia alba, caustic and ammonia, phosphorus, sulphur and arsenic, and the latter was given also as a prophylactic.*

The first medicines to be administrated in this disease are usually one or two drops of the tincture of aconite in alternation with same quantity of the tincture of bryonia alba also in water, at intervals of two or three hours. Or, if the pulse be not much accelerated and febrile heat not very prominent, caustic ammonia in doses of two drops may be given in water. This remedy alone has cured many cases of the pneumonia of cattle. In other cases, the treatment has been successfully commenced with phosphorus and bryonia, the former in doses of one drop of the tincture in a gill of water alternately with the latter, at intervals of two hours.

The remedy selected should be continued for twenty-four hours or more, if improvement continue to progress; but if in that time the symptoms should not be mitigated, or should remain stationary, it may be succeeded by others. Thus, if the treatment be commenced with aconite in alternation with bryonia, or with caustic ammonia, let them be followed by phosphorus and bryonia, and then by sulphur in the same attenuated doses as those of arsenic. Other remedies, such as belladona, thus toxicodendron, cantharides, &c., are occasionally indicated and advantageously employed in this disease; but it is not to be expected that the benefit capable of being derived from any remedy can be attained to its full extent, except in the hands of a practitioner.

It will be observed that a dose of arsenic was administered to the uninfected cows every night, and I would suggest that two or three drops of caustic ammonia should also be given, in about a wineglass full of water, every morning, for the same purpose. The cattle should be kept dry, and guarded against sudden changes in the weather from warm to cold, and particularly cold and damp weather. The strength of the animals should be kept up by a due amount of nutritious food, and exercise *ad libitum* allowed them through the day.

In the North American and United States *Gazette* of the 17th, I observe a communication from the Belgian Consul, recommending the inoculation of healthy animals with the virus of one dead with pleuro pneumonia, as a preventive, and which it is said almost invariably secured them from contagion. He cites the authority of a Dr. Williams (qu. Williem?) who is said to have discovered this means of prevention. In a foreign medical journal, however, now before me, I remark that Dr. Luedersdorf, of Berlin, on exploring the Rhine provinces for the purposes of ascertaining the correctness of Dr. W's assertion, elicited the following as some of the principal facts:—247 cattle were inoculated; in 132 of them the local effect of the inoculation was manifested; ten beasts died of the inoculation. Of all those inoculated, sixteen were afterwards affected with the natural disease. In none of those which took the disease had the inoculation produced any local effect. It should also be remarked, that the inoculation was always ineffectual in those which had previously had the disease.

* From the one-tenth to the one-thousandth of a grain of arsenic, prepared by trituration with sugar of milk, would be a sufficient dose.

The Anatomy of the Steam Engine.

It is not essential to the caption of this article or to our present purpose to enter upon a review of the steam engine constructed through so many years as have elapsed since its invention, or through what slow, though steadily advancing steps, from a rough and imperfect machine, it has become the very king of all motors. The rather do we remark upon the imperfections which still exist, and treat upon their removal. These faults are confined to no one section of the country, but prevail in a greater or less degree everywhere—they prevent the engine from reaching its proper sphere, and from exercising that power which the area of its piston would legitimately give it.

Every machinist and engineer is well aware of the advantage to be derived from close-fitting

boxes (where they should be so) and from surfaces "out of wind," and the like technicalities; and knowing it as they do, it is injurious to the reputation of any concern to allow its work to go from it in a careless and slovenly manner. It has come within our province to remark many times upon the want of *practical* knowledge displayed in the manufacturing of engines, both as respects the convenience of the design and the proper proportions of the same. If we take the matter of metallic packing for pistons, as generally made, we shall find that, even in cylinders of so small diameter as 12 or 15 inches, the two thicknesses of metal that comprise both the inner and outer rings amount (with but few exceptions) to one inch and an eighth. Now, we would ask where the steel spring is which will set these rings out to the cylinder as they wear, or in fact, what mechanical device or process will do it? It is, of course, easy to do it by set screws and springs, but packing so made is not properly constructed, if it be only from the very large margin it leaves for ignorance and recklessness to damage a great deal of property. In our largest ocean steamers the rings seldom exceed half an inch in thickness (separately), and the packing is insured absolutely steam-tight by springs not over 3-16ths at the middle, and swaged down to an edge at the ends—this in cylinders of six and seven feet in diameter. By what argument, therefore, can we reconcile ourselves to the use of packing in a cylinder which would be suitable for one ten times its size? These are common faults, and we have seen many weary hours of labor expended in efforts to make these clumsy pistons steam-tight. We assert that in engines of from six to two hundred horse-power, the rings do not require to be one-half their present thickness, in their relation to fuel, the wear and tear of material and in a percentum upon the duty done by the engine. All these enter into the account. It would certainly lessen the weight of the piston, which, in a horizontal engine, being always resting on the bottom, is a matter of no small moment. A piston which cannot be made steam-tight by *shoving* in the springs, not driving, is a faulty one, and absorbs power and works to a disadvantage.

In the slide valve, which is the very heart and center of the giant's system, there is the same want of practical knowledge displayed. In too many instances we find a mere nothing in respect to *lead* and *lap*, and a choking of the exhaust ports, which makes it a matter of wonder how the engine ever gets past its center. If we take any ordinary valve and continue the width of its faces across it by means of a square, and afterward mark them outside with a center punch; if we perform the same operation with respect to the ports of the cylinder, and having done so, return the value to its seat and set it with the proper lead (which differs in different work), we shall find that, in numberless cases, the exhaust does not open until the piston has commenced its return stroke some inch or more, thereby causing compression of steam and a needless obstruction and resistance. It is the practice with many engineers to delay the closing of the exhaust till the latest possible moment, in order to retain sufficient steam to fill the ports and waste passages. We regard this as a hobby, and not sustained by proof of value. Moreover, the exhaust steam does not wait to be punched out by the piston in a properly-made valve, but releases itself through the slightest opening, leaving the piston in a comparative vacuum. If this were not the case, instead of the present puff, we should have a long wheezy sound. It is a very easy matter to put a sliding cover on two ports, so that they shall open and close alternately; but a valve which shall work with economy to the engine, requires careful study. Also in respect to weight and unnecessary width of surface, many are wanting. With the different forms of regulator in use, where so many are excellent, it is invidious to particularize; but in the old-fashioned two-ball governor, which many yet adhere to, there are details which seem trivial and yet are not so. If we look at it, we find in all six joints and pins, whose friction is to be overcome before the valve can be moved. Suppose the machine in operation and these arms revolving, we find that the weight of the balls and the resistance of the atmosphere are continually throwing the faces of the joints against each other, and, in a word, doing all it can to jam them fast. All these joints and pins are fitted tight; consequently, from the very motion of the thing, the apparatus is half the time inoperative. The motion of the arms which move the sliding collar on the shaft is not at right angles and direct, but diagonal, and consequently slow. A properly constructed governor, according to our theory, consists of but four joints; these have no faces, but swing on hardened steel centers, whereby the friction is reduced to the lowest possible point. The arms are at right angles with the shaft, the balls hang vertically and the action of the centrifugal force is positive. With such a governor the speed can be maintained to a nicety, on account of its lessened friction, the extreme sensitiveness with which it acts and the correct principles involved in its construction. This detail of an engine, from its duty, requires to be as delicately made as possible, or else we shall find the engine varying in speed every minute. And we submit that if an engine, or any machine, be worth making at all, it is worth doing as well as the resources of the age will admit. Absolute accuracy goes far to insure perfection, where the general details and design of an engine or machine are faulty; and it is a source of pride to a maker when he can point to the product of his skill and capital, and say that the cost of repair, considered by the amount of duty done, has been infinitesimal.—*Scientific American.*

The best authorities in Chicago now agree in the opinion that the amount of grain which will

be received in that place during the year ending July 31st, 1861, will be 50,000,000 bushels. Of this about 25,000,000 bushels will be wheat.

Correspondence.

Township Agricultural Societies.

EDITOR OF THE AGRICULTURIST,—In the report of the Dundas County Agricultural Society, of which copious exrracts appear in the *Agriculturist* of September 1st, a discontinuance of the Legislative grant to Township Societies, and its exclusive appropriation to County Societies is recommended.

Every one has a right to hold and to express opinions, however contrary to those generally received, so long as their practical application is not detrimental to the well being of the community; but when a person recommends a practice unjust in itself, and consequently injurious to society, he abuses his privilege, and it becomes the duty of those who would do as they would be done by, to expose its evil tendencies.

The money which constitutes the Legislative grant is of course first drawn from the people; the residents of remote localities pay their just proportion of the taxes with those who live in the vicinity of county towns, and consequently have an equal right with them to a portion of that grant, so long as it is properly and lawfully applied. It may be said that all can be members of County Societies, and thus participate in its benefits; but this argument is fallacious; distance alone would virtually exclude the majority of the inhabitants of large counties, and place them beyond its influence. Men who live 40 miles or more from the place where the County show is held, will have little inducement to become members; a few of the townships in its immediate neighborhood would alone be benefitted, and year after year large premiums would fall into the hands of the favored few; producing a feeling of dissatisfaction if not of disgust on the one hand, and encouraging rapacity and avarice on the other. The competition being narrowed and the premiums enlarged, the stimulant of honor would degenerate into an unseemly scramble for pecuniary gain, and the "literary and scientific improvement" spoken of, confined to a very small circle, the man in the moon deriving about the same advantage therefrom, as the residents of the distant townships.

There appears to be a disposition on the part of the officers of some county societies, to underrate the usefulness of township societies, to disallow, or to affect to ignore their claims. Although fortuitous circumstances place some men in more favourable positions and localities than others, it does not follow that they should be allowed to grasp and retain that to which their less fortunate fellows have an equal claim. Selfishness is one of the baser passions of our nature, and when combined with arrogance, is peculiarly odious.

So far from township societies being "*productive of no good, but rather a squandering of public money*," they are in this part of the country productive of beneficial results, and their management of the funds at their disposal will not suffer by comparison with county societies. If instead of attempting to elevate and improve one part of the community at the expense of another part, by "*rewarding merit with large premiums*," a desire to obtain honorary distinction as a reward of merit was encouraged by example, the incentive to exertion would be divested of its sordid character, and be more likely to improve and elevate the tone of society.

Near Mount Forest, Sept. 17. C.

Prizes for Milch Cows.

EDITOR AGRICULTURIST,—It appears to me that in deciding upon the merits of the cows shown for prizes at the late Exhibition in this city, their milking qualities were almost totally overlooked. Would it not be well to bring before the Board of Agriculture the subject of offering a special prize for the best milch cow of any breed, the quality and quantity of milk given to be the principal object. The cows to be milked regularly for three days of the fair, and the quality tested by a lactometer. All the cows to be fed alike, while under the care of the judges. JOHN MACKELCAN, JR.

Hamilton, Sept. 25, 1860.

Hedge Plants.

EDITORS OF THE AGRICULTURIST,—Will you have the kindness to give your opinion as to the best kind of hedge plants for ornament—the most certain to grow in this climate. I observe that the nursery vendors have various kinds for sale, such as Barberry, Buckthorn, Red and White Ceder, Osage Orange, Privet, &c. I suppose the fall the best season for transplanting. Yours, &c. A SUBSCRIBER.

Port Rowan, Sept. 29.

[The common cedar makes a very handsome hedge, and so close and strong as to resist any aggressor, large or small. It is very easily transplanted; the spring being we believe the best time for the operation. A very fine hedge of this sort may be seen at the grounds of Mr. Leslie, Nursery Gardens, in this city. The hemlock also makes a good hedge, but does not bear transplanting quite so well as the cedar. The buckthorn also is excellent, perhaps the best plant that can be used for general fencing purposes, of rapid growth, perfectly hardy, and proof against all insect pests. For a merely ornamental hedge, in a garden or pleasure grounds, either the barberry or privet answer very well, and probably there are many other

plants which may be used for the purpose. We have not full information in regard to the Osage orange, but are disposed to think it rather tender for this climate. The general subject of live hedges is a very important and interesting one, and we shall be happy to receive any information from our correspondents in regard to it. —Eds.]

Sorghum Sugar.

Editors Agriculturist,—Can you, or any of your correspondents, inform me of the best way to convert Sorghum into good syrup or molasses, what machinery is required and where it can be procured; how to purify or refine it, if necessary; how thick it must be boiled; and if any means have been discovered to crystalise it so as to form sugar? Yours, &c., R. N. B.

Niagara, Sept. 28, 1860.

Horticultural.

Fruit Growers' Association of Upper Canada.

The lamented death of Judge Campbell of Niagara, who was President and a most active member of the Upper Canada Fruit Growers' Association, seriously interfered with the operations of that useful society, as, in consequence of the sad event, the Annual Meeting, which was to have been held in Toronto, on the third Wednesday of January last, for the election of office-bearers for the current year, did not take place.

Unwilling however, that the society should also cease to exist, after an auspicious commencement and promise of much usefulness, several of its members, among whom were Messrs. Leslie, Arnold, Fleming, Freed, Beadle, Caldwell, &c., met at the late Provincial Exhibition—Dr. Hurlburt, one of the Vice-Presidents, in the chair, and Dr. Craigie, Secretary *pro tem*, when it was resolved to re-organize the society; and various committees were appointed to report to a Special Meeting of the Society, to be held in the Mechanics' Institute, Hamilton, on Wednesday the 24th October, at 3 o'clock, this being the day of the Fall Show of the Hamilton Horticultural Society.

We need not add that we hope to receive a satisfactory report of the proceedings, for no one can doubt that a fine field of useful labor is open for cultivation to this much needed association.

Winter Protection for Trees.

by W. C. Strong, in Gardener's Chronicle.

In the cold latitude of New England this subject is becoming increasingly important. Whether because our forests are cleared, and the open country gives more sweep to the wind, or our winters are colder, or a richer cultivation is in practice, and vegetation is more rank and succulent, or because more artificial and delicate varieties of fruit are in vogue,—whether from one or all of these causes, certain it is, that the proportion of failures from the effects of winter is discouragingly on the increase. A knowledge of the cause is a step towards a cure. Doubtless these causes vary in differing cases; but it would seem reasonable to expect that careful observation would teach us wherein lies our greatest danger. The past winter is specially worthy of note, both from its peculiarity, and the severity of its effects. In this region it is the univeral experience that evergreens, vines, fruit trees, passed through a scathing trial. In the early part of December the winter closed in suddenly and with considerable severity, and a cause is found in this fact by many. But in December the sap of trees is most thoroughly absorbed, and consequently the trees are in the best condition to endure cold. Unless an unusually warm November should cause a flow of sap, it would seem as though December and January were the seasons of greatest endurance. Excepting the rather unusual cold term in December, which was yet by no means as cold as many nights in January, the winter of 1858–9 was apparently favorable, and only moderately cold. A careful examination of evergreens on the 1st of March convinced me that they had passed the winter with unusual vigor. I am strongly inclined to think this was also true of all deciduous trees. After a mild March and indications of an early spring, on the 3d of April and for four successive days, raged a fierce, dry, cold north-west wind. The cold was not intense, but sufficient to freeze the ground and prevent plowing, which is not unusual at that season. But the wind was intensely trying, harsh and dry, far worse to endure than the coldest zero weather. Why should it not be as true for plants as of animals? Why should not the wind that dries and chaps and cracks the skin, also cause excessive evaporation of plants, suck out their juices and leave them in all stages of exhaustion? The effects of the April wind were very apparent. Trees that were protected by a hedge, were uninjured to the top of the hedge; but where they ventured above the hedge-line, their tops were cut off as with a knife. The outside north-west ranks of nursery trees stood the brunt and suffered like the front ranks of a phalanx. Wherever trees have had the shelter of other trees, or of a favorable position, they have come out the past spring with great vigor; but in exposed places, even the Rock Maple has been greatly weakened, and many branches killed outright.

While it is doubtless true that trees are oftentimes killed by the intensity of cold alone, yet reason and facts seem also to indicate that the harsh, dry winds, that are so trying to animal life, are equally injurious to vegetable life, and are much more commonly the cause of "winter-killing" than simple intense cold.

If this view is correct, it is very satisfactory to the horticulturist; for the cause, on its face, suggests a remedy. Sheltered positions can be found, or shelter can be erected. Hardy evergreens seem to be the most perfectly adapted for this purpose, and I would name the Austrian and Scotch Pines as most perfect of all. Their power of endurance is beyond any other evergreen with which I am acquainted, and their rugged foliage forms an admirable break to the wind. But while simple shelter is ordinarily quite sufficient for most kinds of fruit trees, or at least all that can be practicably given, there are other kinds that will repay for ample protection. I confess to some surprise that so much is made of the extreme hardiness of this or that variety of the grape, for instance. We hear an introducer claim, that though his "variety may not be the 'best,' yet it is remarkably hardy." Not long since, a friend and distinguished cultivator of the grape was pointing out to me the mortality, among some varieties, from the effects of cold. I asked him why he did not protect them. He replied, that unless a variety could look into the very teeth of a north-wester, and stand the brunt of all weather, it should have immediate leave to retire from the list. Now, I shall express my opinion with the same boldness and say that, by this rule he must disband his whole army, (for he is trying them all.)

The truth is, we have no perfectly hardy table grapes for New England. Doubtless they may break at the proper time, and with tolerable strength in most instances; but at best they are what we call hardy perpetual roses. They are hardy; but every cultivator knows how much more vigorously they break and flower if they have winter protection. Am I asked if I would protect the Concord or Hartford? Certainly, by all means; lay them down like raspberries. No other labor will yield such proportionate reward. And it seems to be of minor importance that the Rebecca is scarcely able to endure open exposure. Compared with the ample returns in vigor and abundance of fruit, it is so simple and easy to cover vines with earth, as raspberries, that I should suppose the practice would be adopted by all vineyardists. Even the Peach may repay for this treatment in Massachusetts. This year's crop is a total failure. In the spring a premium was offered for a dozen peach blooms from any one orchard; yet I know an instance where branches were covered with earth during winter, and they are now loaded with fruit.

In conclusion, beyond the absolutely "killed," is not the weakening process of winter exposure a more important evil than we are accustomed to regard it? and are not judicious expenditures for shelter and protection of prime importance to the horticulturist?

Miscellaneous.

Modern English.—The whole literature of notices, advertisements, and hand-bills—no small portion of our reading in these days—seems to have declared war to the knife against every trace of the Angles, Saxons, and Jutes. To be sure there are a few words which will obstinately stick to their places: "of" and "and," and "in" and "out," "you," "I," "they," "is" and "was," "shall," and a few more of the like kind, seem to have made up their minds not to move. But "man," "woman," "child," and "house," have already become something like archaisms. To be sure, what *ens rationis* of any spirit would put up with being called "man," when he could add four more syllables to his account of himself, and be spoken of as an "individual?" The "man" is clean gone, quite wiped out; his place is filled up by "individuals," "gentlemen," "characters," and "parties." The "woman," who, in times past, was the "man's" wife, has vanished still more completely.....We read only the other day a report of a lecture on the poet Crabbe, in which she who was afterwards Mrs. Crabbe was spoken of as "a female to whom he had formed an attachment." To us, indeed, it seems that a man's wife should be spoken of in some way which is not equally applicable to a ewe lamb or a favourite mare. But it was a "female" who delivered the lecture, and we suppose the females know best about their own affairs. To be sure "female" is not our only choice. There are also "ladies" in abundance, and a still more remarkable class of "young persons." Why a "young person" invariably means a young woman is a great mystery, especially as we believe an "old person" may be of either sex. Men and women being no more, it is only natural that "children" should follow them. There are no longer "boys" and "girls;" there are instead, "young gentlemen," "young ladies," "juveniles," "juvenile members of the community." "Houses," too, have disappeared along with those who used to live in them. A man and a woman used to live in a house, but an "individual" or a "party," when he has conducted to the hymensal altar the young female to whom he has formed an attachment, cannot possibly do less than take her to "reside" in a "residence."—*Bentley's Quarterly.*

A letter in the London *Times* describes the fields near Scarborough, England, as being covered with snow in July. In France, too, at Bourges, the people were surprised by a sharp frost, which occured in the midst of a spell of unusual heat.

Transactions.

Abstract of Reports of Societies.

Continued from page 447.

TOWNSHIP SOCIETIES, DUNDAS CO.

MOUNTAIN.—Fifty-four members; amount of subscription, $54; total receipts, $135. Paid in premiums, $109.94; incidental expenses, $25.06.

WINCHESTER.—Fifty-eight members; amount subscribed, $65; amount of public grant, $91.80; balance from 1858, $24.50; total received, $181.30. Paid in premiums, $170.50; incidental expenses, $8.88; balance in Treasurer's hands, $1.92.

To be continued.

MEETINGS OF THE BOARD OF AGRICULTURE.

HAMILTON, August 14th, 1860.

The Board met at the Royal Hotel, at 1 p. m.

Present: Messrs. E. W. Thomson, (President,) R. L. Denison, Hon. H. Ruttan, Hon. G. Alexander, Asa A. Burnham, Wm. Ferguson, J. Wade, Dr. Beatty, J. E. Pell.

The minutes of last meeting were read and approved.

The following mentioned communications were submitted:—

From Mr. Hutton, Secretary of the Bureau of Agriculture, with drawings and description of a new Flax Scutching Machine, manufactured and patented by Messrs. Rowan & Sons, of Belfast, Ireland; the machine being capable of dressing about 1 lb. of flax per minute, and would cost delivered at Toronto or Hamilton, about $900. Mr. Hutton recommended the same to the notice of the Board.

From Mr. Hutton, on the subject of the cattle disease called Pleuro Pneumonia, prevalent this season in Massachusetts, enclosing a communication from Mr. Jas. Anderson, of Montreal, addressed to His Excellency the Governor General, and another from Mr. S. J. Lyman, of Montreal, on the same subject; and requesting the Board to report on the same. These communications were referred to a Committee, consisting of the President, Mr. Wade, the Secretary and Dr. Beatty.

From Mr. Gillespy, Secretary of the Local Committee, Hamilton, enclosing the following resolution of that Committee:

"Moved by Dr. Hurlburt, seconded by Alderman Meakins, and *Resolved*—That a representation be made to the Board of Agriculture, that an unusually large expenditure will be incurred in preparing for the Show of next September, and that as the occasion of this great additional expense, namely the visit of His Royal Highness the Prince of Wales, will add immensely to the receipts from the sale of tickets, that, as the expense will fall on the Local Committee, and the profits be reaped by the Agricultural Association, the Board of Agriculture be asked to allow the Local Committee a liberal grant."

From Mr. J. S. Wetenhall, Hamilton, applying for the appointment of General Superintendent to the Association.

From Mr. Hutton, Quebec, enclosing a communication from Col. Irvine, A. D. C., to His Excellency the Governor General, stating that His Royal Highness the Prince of Wales would probably be in Hamilton about the 17th September.

Mr. Denison submitted a design of a medal for Prizes, which was approved of, and the Committee on the Prize List was instructed to get the medals executed.

The Board then adjourned, at 3 p. m., to meet the Local Committee on the Show Ground.

TORONTO, Aug. 15th, 1860.

The Board met at the office, Toronto, at 9 a. m.

Present: The President, Messrs. Denison, Ruttan, Beatty, Pell.

Minutes of yesterday read.

A communication was received from the Local Committee embodying certain reports recommending an appropriation of three hundred dollars in aid of musical performances to be given in the Crystal Palace during the Exhibition by the Philharmonic Society of Hamilton, and also of the sum of three hundred and seventy-five dollars to be given in prizes for bands.

A communication was also received from the Local Committee enclosing the following resolution adopted at their meeting yesterday:

"Moved by J. F. Gilkinson, and seconded by Mr. Wade,—That the President of the Board of Agriculture be requested to inti-

mate to His Excellency the Governor General that the Agricultural Association desire that it may suit the convenience of His Royal Highness the Prince of Wales to visit the Provincial Show on Wednesday, the 19th, and open it on Thursday, the 20th September; and that the Hon. Sir A. N. MacNab, and the Hon. G. Alexander and the other members of the Board of Agricul ture in Quebec be a Committee to represent the views of this Committee."—Carried.

From Mr. Hutton, Quebec, August 13th, stating that from information he had received he believed from the 18th to the 21st September would be the time which would best suit the convenience of His Royal Highness the Prince of Wales to attend the exhibition.

From the American Pomological Society, inviting the Board to send delegates to the eighth session of the Society, to be held in the city of Philadelphia, commencing 11th September next.

Resolved,—That the exhibition take place on the 18th, 19th, 20th and 21st September, and that the suggestions in the resolution of the local committee in reference to His Royal Highness the Prince of Wales be adopted.

Resolved,—That in reference to the Report of the Committee on Public Entertainments recommending an appropriation of $300 to the Philharmonic Society, this Board cannot concur therein, as from past experience they consider an entertainment of the kind proposed on the opening of the exhibition will be attended with the most injurious consequences to the goods exhibited, besides other serious inconveniences.

Resolved,—That the Report of the Committee on Bands be adopted in so far as the programme is concerned and the amounts, but with the understanding that the Local Committee so arrange that music be furnished whenever required for the purpose of amusement, and that the judges be appointed by this Board, and the premiums paid by the Treasurer in the usual way.

Resolved,—That should the Hamilton Committee adopt a banquet in connection with the Provincial Show, that the Board appropriate the sum of two hundred dollars for the purchase of tickets to present to distinguished visitors.

Resolved,—That the President of the Board, the President of the Association, and the Hon. Mr. Ruttan, be a committee to prepare an address to be presented to His Royal Highness the Prince of Wales at the opening of the Provincial Exhibition at Hamilton, and that the address be suitably engrossed

The Board then adjourned to August 31st, at Hamilton.

HAMILTON, Friday, Aug. 31, 1860.

The Board met at 10, a.m., pursuant to adjournment.

Present—The President, Messrs. R. L. Denison, Asa A. Burnham, Dr. Beatty, Mr. Pell.

Minutes of last meeting were read and approved.

The following communications were received:—

From Dr. Hurlburt, of Hamilton, requesting a reconsideration of the resolution in regard to the Concert of the Philharmonic Society in the Crystal Palace.

From the Secretary of the Local Committee on the same subject.

The President submitted a draft of the address to the Prince of Wales, adopted by the Committee appointed at last meeting, which was approved, and copies ordered to be prepared accordingly.

From Mr. G. A. Bull, Superintendent of Schools in the township of Barton, requesting that the school children of all the common schools in the county might have free admission to the exhibition grounds.

From Hon. Adam Fergusson, dated July 16, in reference to the cattle disease in Massachusetts, expressing his opinion that from the praiseworthy and energetic measures there adopted, the disease would not extend beyond the State; and also stating that he had been informed by an able veterinarian, that aconite, if the disease was attended to in an early stage, was almost a specific.

From Mr. Samuel Hodgskin, of Guelph, on the subject of stalls for horses and cattle, requesting that parties might be allowed to secure possession previous to the show.

From Mr. Wetenhall, Secretary of Hamilton Electoral Division Society, stating that the funds of that Society would be paid over to the Association and the names of members given, previous to the show.

From Mr. C. H. Vernon, President of the Township of Haldimand Agricultural

Society, in reference to proposed changes in the Agricultural Statute, expressing the opinion of that Society that if the Mechanics' and Arts Institutes are allowed to send Delegates to the Provincial Association, the Township Societies ought also to have the same privilege.

From Mr. Wetenhall, of Hamilton, renewing his application for the appointment of General Superintendent.

Mr. Denison submitted the following draft of Rules for the appointment of a General Superintendent, and the organization of his department:—

"The Superintendent to be selected, if possible, with a view to continued services, so that experience gained may benefit the Association.

The Superintendent to ride a good horse, and to remain mounted as much as convenient, so that he may be seen from every quarter of the grounds; the horse if possible to be of a conspicuous color, say black, white, or cream.

The Superintendent to have general charge of the grounds, of the people, and of every article after it has been admitted through the gates.

The Superintendent shall submit for the approval of the Board, a list of all the men he may deem requisite to employ as police, or care-takers, or workmen, and shall have power to dismiss any man employed who may be unfit for his duty, or insubordinate, which men shall at all times be under the direction of the Superintendent.

The Superintendent shall keep an office on the ground, and have a clerk, who shall be present in the office at all times, and keep the time of the people employed in his department, and call the roll every morning at eight o'clock, or at least one hour before the grounds are open to the public.

The Superintendent, clerk, and all under him to be supplied with a particular badge, and have admittance into the grounds at all hours, either day or night, by application at the proper gate.

The Superintendent to receive all the Judges' Books from the Secretary, and give them to the proper Jury, or be present when they receive them from the Secretary; to hunt up and introduce all gentlemen forming a jury, that they may know each other before they commence their work.

The Superintendent to see that all classes of machinery, stock, grain, roots, implements, &c., be put and kept together, in order that the Judges may not have to hunt them up from all quarters..

The Superintendent to see that the proper people attend upon the Judges when required; and have all horses, cattle, &c., brought out of stable or into the rings when necessary, with a view to saving time, and having everything done in order.

The Superintendent to prevent as far as possible exhibiters and others from taking any article on exhibition from the grounds until the Exhibition is closed, or a special order exhibited signed by the President."

On motion, the foregoing draft of rules and regulations for the government of the General Superintendent's department was adopted.

Moved by Dr. Beatty, seconded by Mr. Burnham, That Mr. Wetenhall's application for the appointment of General Superintendent be accepted.—Carried.

Mr. G. A. Bull's communication was then considered, and compliance therewith declined, on account of the great inconvenience it would cause in the general arrangements.

Ordered—That public notice be given that applications for close stalls will be received by the Secretary till Wednesday, 12th Sept., $4 to be paid for each.

The President reported that the committee appointed to confer with the local committee, in reference to the expenditure, had done so on Saturday, 18th August, and had apportioned the expenditure as they considered in accordance with the law and the constitution of the Association, between the city authorities and the local committee; the expenditure on the part of the committee to be defrayed from funds now in their possession or at their command, and when such funds are exhausted the balance to be paid by the Board.

A communication was received from Mr. Stock, of Flamboro, embodying a letter from Mr. Ferguson, of Kingston, on the subject of the pedigree of some Durham cattle; the consideration of which was deferred.

Resolved,—That Mr. Pell do take charge of the goods in the Crystal Palace.

Ordered,—That the Secretary advertize a general notice, that in view of the Prince of Wales' visit taking place one day earlier than was expected, it is absolutely necessary that articles be on the grounds on Saturday and Monday, so that they may be fully

arranged by Tuesday morning, and that live stock must be on the grounds as early as possible on Tuesday, none later than noon.

Resolved,—That in respect to the renewed application of the Local Committee for the performance of the Philharmonic Society at the opening of the Exhibition, this Board will withdraw its objection thereto, although at the same time they hereby record an expression of apprehension that damage is likely to ensue from such a performance to the goods exhibited.

The Board then adjourned to Thursday the 13th, at the same place.

HAMILTON, Thursday, Sept. 13.

The following members were present at the Royal Hotel, at 2 p.m., pursuant to adjournment, viz., the President, Messrs. Denison, Beatty and Pell.

There not being a quorum of members present, after attending to some committee business the meeting was adjourned to Monday the 17th, at the show ground, Hamilton.

HAMILTON, Monday, Sept. 17th, 1860.

The Board met in the Committee Room, on the show ground, at 4 p.m.

Present—The President, Messrs. Alexander, Christie, Burnham, Denison, Ruttan, Wade and Beatty.

The minutes of previous meeting were read and approved.

Mr. Ferguson's letter, submitted at the previous meeting, in reference to the pedigree of a Durham cow, sold by him to Mr. H. R. O'Reilly, was considered, and it was

Resolved,—That the Durham cow Sontag be allowed to compete, with the understanding that if any premium be awarded it be withheld till the pedigree be established.

Resolved,—That the members of the Local Committee have complimentary tickets to admit themselves and families during the exhibition.

Ordered,—That the only private entrance for officers, judges, &c., be through the business office.

Ordered,—That the members of the city corporation be furnished with complimentary tickets for themselves and families the same as the members of the Local Committee.

A communication was received from Mr. Widder, Commissioner of the Canada Company, requesting to have samples of the prize wheat, peas, barley, rye and oats for transmission to the Company's offices, England, in order to afford the people of the mother country the means of forming correct impressions of the grain-producing capabilities of this Province.

Resolved,—That the specimens of grain be furnished Mr. Widder, as requested by him.

Ordered,—That the Board meet every day during the show week at 9 a.m.

The Board then adjourned.

TUESDAY, Sept. 18, 1860.

The Board met at 9 a.m.

Present—Hon. Mr. Alexander, Hon. Mr. Christie, Mr. Wade, Dr. Beatty, and Mr. Pell.

Mr. Wade, President of the Association, in the chair.

Some routine business was despatched.

At ten o'clock the judges nominated by the different Societies assembled in the Committee Room, and were appointed to the different classes.

The Board adjourned.

WEDNESDAY, Sept. 19, 1860.

The Board met at 9 a.m.

Present—The President, Messrs. Burnham, Wade, Beatty, Denison.

Minutes read and approved.

Ordered,—That the members of the Philharmonic Society have admission tickets free to the performance on Thursday.

A draft of rules and regulations was submitted from Wetenhall, General Superintendent, for the management of the exhibition, and the arrangement of the stock and articles, on the arrival of the Prince, which was approved.

The Board adjourned to 4.30 p.m.

Same Day, 4.30 p.m.

The Board resumed.

Present—The President, Messrs. Ruttan, Alexander, Burnham, Denison, Wade, Beatty, Pell.

Moved by Hon. Mr. Alexander, seconded by Mr. Pell, and

Resolved,—That this Board deeply regret that His Royal Highness the Prince of

Wales should not have had an opportunity of privately visiting the exhibition as proposed this day. The disappointment was occasioned in the first place by the visit having been published in the programme without the knowledge of this Board, and secondly by the guard of honor having been posted at the gate and leading to the main entrance. This Board would, therefore, most humbly and respectfully invite His Royal Highness to again visit the exhibition at such time and in such way as would be most agreeable to him, and that Messrs. Wade, Thomson, Alexander and Beatty be a deputation to wait upon His Royal Highness forthwith, with a view of carrying out such arrangement.

The Board adjourned.

THURSDAY, Sept. 20, 1860.

The Board met at 9 a. m.

Present: The President, R. L. Denison, Hon. D. Christie, Wm. Ferguson, Hon. H. Ruttan, J. Wade, Rev. Dr. Ryerson, Dr. Beatty.

Resolved,—That this Board will instruct that the Palace shall be kept closed until after the visit of the Prince, and that R. L. Denison, Esq., be appointed Marshal of this day, to make such arrangements as may be necessary for exhibiting horses, cattle, &c., to the Royal Party.

Several appeals in reference to the decisions of the Judges were received and referred to Committees to investigate the same.

The Secretary submitted the engrossed copy of the address to His Royal Highness the Prince of Wales, to be presented at 11 a. m. this day on the grounds, together with the copy of the volumes of the Transactions of the Association therein referred to, suitably bound and enclosed in a case for the occasion, which were approved of.

The Board then adjourned.

VISIT OF HIS ROYAL HIGHNESS THE PRINCE OF WALES TO THE EXHIBITION.

At 11.30 a. m., this day, (Thursday, Sept. 20,) His Royal Highness the Prince of Wales arrived upon the grounds, attended by the Duke of Newcastle and other members of his Suite, and took his place upon the platform erected near the Crystal Palace, upon which were also assembled the members of the Board of Agriculture.

Mr. Wade, President of the Association then read the address, as follows:—

To His Royal Highness, Albert Edward, Prince of Wales, &c. &c.

MAY IT PLEASE YOUR ROYAL HIGHNESS:—We, the Agriculturists, Artisans, and Manufacturers of Upper Canada, beg to approach your Royal Highness with our expressions of devoted loyalty to Her Most Gracious Majesty's Crown and person, and to offer to your Royal Highness a most cordial welcome to this exhibition of the products of our soil and of our labour. This is the fifteenth exhibition of the Agricultural Association of Upper Canada, and we think it demonstrates to those who have witnessed the successive exhibitions from year to year, that they have been succes-ful in stimulating the industrial classes in the improvement of all those productions upon which the prosperity of this portion of Her Majesty's Dominions mainly depends.

Blessed with a fertile soil and healthful climate, and forming a portion of that extensive empire over which Her Majesty's benign rule extends, and in which it is exerci ed in the maintenance of the religious and civil rights of all classes of Her subjects, we hail with delight the auspicious event of your Royal Highness' visit to this Colony, and rejoice that we have this opportunity of exhibiting to your Royal Highness, as we take what we hope we may call an honest pride in exhibiting, as to our future Sovereign, such proofs of the industry, skill and intelligence of the inhabitants of this country.

We gladly embrace this opportunity of expressing our ardent desire to maintain the connection of this Province with that great and glorious empire of which we rejoice in forming an integral part, and from which we have in great part derived our Agriculture as well as our existence; and whilst availing ourselves of the example and improvements of the older portions of the empire, and of the many natural advantages we possess in our soil, climate, and navigable waters, we trust that our efforts may result in affording convincing proof that this Province is really a valuable jewel in the crown of our beloved Sovereign.

We hopefully pray that the intercourse of your Royal Highness with the inhabitants of Canada, and the opportunity you have had of witnessing the efforts we are making to advance the material interests of our coun-

try may, during your future life, leave a pleasing impression in your memory.

That your Royal Highness may be placed in possession of statistical and other facts connected with the rise and progress of this Association, we beg that your Royal Highness will condescend to accept these volumes, containing a record of the Transactions of this Association from its establishment.

To which His Royal Highness made the following reply :—

GENTLEMEN,—I return you my warm acknowledgments for the address you have just presented upon the occasion of opening the fifteenth exhibition of the Agricultural Society of Upper Canada, and I take this opportunity of thanking the agriculturists, artisans and manufacturers who are now assembled from distant parts, in this City of Hamilton, for the more than kind and enthusiastic reception which they gave me yesterday, and have repeated to-day.

Blessed with a soil of very remarkable fertility, and a hardy race of industrious and enterprising men, this district must rapidly assume a most important position in the markets of the world, and I rejoice to learn that the improvements in agriculture, which skill, labor and science have of late years developed in the mother country, are fast increasing the capabilities of your soil, and enabling you to compete successfully with the energetic people, whose stock and other products are now ranged in friendly rivalry within your own within this vast enclosure.

The Almighty has this year granted you that greatest boon to a people—an abundant harvest. I trust it will make glad many a home of those I see around me, and bring increased wealth and prosperity to this magnificent Province.

My duties as Representative of the Queen, deputed by Her to visit British North America, cease this day; but in a private capacity I am about to visit, before my return home, that remarkable land which claims with us a common ancestry, and in whose extraordinary progress every Englishman feels a common interest.

Before, however, I quit British soil, let me once more address through you the inhabitants of United Canada, and bid them an affectionate farewell.

May God pour down His choicest blessings upon this great and loyal people.

His Royal Highness and Suite then visited and examined the various departments of the exhibition in the building and grounds.

FRIDAY, Sept. 21, 1860.

The Board met at 9 a. m.

The minutes of yesterday were read and approved.

Present: The President, Messrs. Alexander, Ruttan, Denison, Burnham, Christie, Ferguson, Wade, Beatty, Pell.

Several appeals against awards of the judges being made, it was

Resolved,—That Messrs. Christie, Burnham and Ferguson, be a Committee to adjust the premiums in the Agricultural department, and Messrs. Alexander, Beatty, Ruttan and Pell in the Arts department.

Mr. Ferguson brought up the subject of his letter read at a previous meeting in regard to the pedigree of a certain Durham Bull formerly owned by him, and claimed that as the bull had been exhibited and awarded premiums at former exhibitions of the Association, he should now be entered in the Stock Register kept at the office of the Association. After some conversation on the question of pedigrees the Board adjourned for the Annual Meeting of the Association at 10 a. m.

Editorial Notices.

University College.

DEPARTMENT OF AGRICULTURE.—The regular course of Lectures on the Theory and Practice of Agriculture, will commence on Monday, October 15th. Occasional Students can enter this class at any time, but it would be most advantageous for them to do so as early as may be practicable, and not later than the beginning of January. Such students are not subjected to any preliminary examination, and can attend courses on Chemistry, Geology, Botany and Natural History, History and English Literature, &c. The fees are merely nominal, so that a young man may go through a pretty extensive course of instruction during the winter months, on subjects that have an immediate bearing on the ordinary pursuits of life; the only expense worth naming is that for board and lodging.

Full particulars may be obtained by applying personally, or by letter, to Professor Buckland, University College, Toronto.

The Late Provincial Exhibition.

The Fifteenth Exhibition of the Agricultural Association of Upper Canada, held at Hamilton last month, was we think beyond doubt, as many of our readers of course had an opportunity of witnessing for themselves, the most successful which has yet taken place in the Province. Indeed we doubt very much whether a more excellent, full and imposing display of the products of a country was ever offered on any part of this North American continent. Whether in the department of live stock, agricultural or horticultural products, implements, or domestic manufactures, the array of animals or articles equalled or surpassed, both in number and quality, those upon any previous occasion. On the whole the exhibition was one of which Canada may well be proud, and grateful that she has the soil and climate and the industrious and enterprizing inhabitants to enable her to make such a display. And occurring upon the peculiar occasion it did, we mean concurrently with the visit of the heir to the British throne to this part of the empire, accompanied as that visit was by many distinguished and observing persons from abroad, we may confidently anticipate that the late exhibition will be of great value to us by disseminating in the British Islands and elsewhere, a true knowledge of the producing capabilities and resources of our country. As we shall give a full and complete report of the exhibition in all its departments, with a correct list of the prizes awarded, in our next and succeeding numbers, this brief notice must suffice for the present.

West Northumberland Agricultural Society.—The Fall Show of this Society will be held at Cobourg, on Wednesday, 17th inst.

Our Present Number.—Owing to several unavoidable circumstances, the present number of the *Agriculturist* has been delayed considerably past the proper time of publication. We shall be up to time again after the next number.

An Old Gentlemen, who was never accused of being a wizard, went out with his gun one day to hunt squirrels, accompanied by his son. Before they approached the ground where they expected to find the game, the gun was charged with a severe load, and when at last the old gentleman discovered one of the little animals, he took a rest and blazed away, expecting to see him fall, of course—but not so did it happen, for the gun recoiled with so much force as to "kick" him over. The old man got up, and while rubbing the sparks out of his eyes, inquired of his son, "Alphy, did I point the right end of the gun at the squirrel?"

Markets.

TORONTO MARKETS.

Friday, Oct 12, 1860.

Of Fall Wheat the deliveries to-day were 6,000 bushels, which sold at on advance over yesterday. The best grades sold at from $1 25 to $1 38; average $1 30 per bush. There was a good deal of inferior which sold at from $1 20 to $1 24. Very little sold below $1 20. Of Spring Wheat 1,000 bshls sold at from $1 05 to $1 10. Of Barley, 3,000 bshls sold at from 62c to 66c; average 64½c. Of Peas, 1,000 bshls at from 54c to 60c. Of Oats, 800 bshls at from 28c to 30c. Hay, $11 to $16 per ton. Straw, $6 to $7 per ton.

NEW YORK MARKETS.

New York, Oct. 12, 1860.

Flour—receipts 27,687 brls; the market to-day is without striking change; sales, 17,000 brls at $5 35 to $5 40 for superfine State; $5 55 to $5 60 for extra State; $5 35 to $5 40 for superfine Western; $5 55 to $5 75 for common to medium extra Western; $5 75 to $5 90 for inferior to good shipping brands extra round-hoop Ohio.

Canadian Flour—unchanged; sales 500 brls at $5 70 to $7 50.

Rye Flour—steady at $3 50 to $4 40.

Wheat—receipts 73,596 bshls; market to-day is a shade better with a fair export demand; sales 90,000 bshls at $1 21 to $1 25 for Chicago Spring; $1 26 to $1 30 for Milwaukie Club; $1 35 to $1 37 for winter red Western; $1 42 to $1 55 for white of all kinds.

Rye—firm; sales 1,000 bshls at 90c.

Barley—in moderate request; sales 9,100 bshls of State at 75c to 80c.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed for the Board of Agriculture at 77 King Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten orders and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, OCTOBER 15, 1860. No. 20.

A Word or two in Season.

Thanks to a kind Providence, the labors of our farmers have this season been blessed with a rich reward. The crops in general have proved unusually abundant, and in no section of the Province that we have heard of, but more than an average amount of produce has been obtained. This, coupled with a price that cannot fail to be remunerating, will tend to strengthen and confirm a return to prosperity, which of late has been slowly dawning upon us; and it is devoutly to be wished that nothing will be allowed to transpire from the folly of man, to cast even a momentary gloom over the brightening prospects that are now happily before the country. Farmers are now busy in preparing their grain for market; and there can be no doubt that remunerative prices will be maintained. The latest accounts from the United Kingdom still complain of the continuance of most unfavorable weather, which was also being experienced by a large section of northern Europe. The crops must have suffered seriously, and already in some instances it has been found necessary to kiln-dry wheat, before it can be ground at all. A good demand therefore will obtain for our dry and superior kinds of wheat for mixing with those of inferior value of British growth, to ensure a sample of flour of even ordinary quality.

The hay crop in some sections of the Province, in consequence of the dryness of the spring, was scarcely an average, while in other districts it was more abundant, and secured in prime condition. What, however, with the large growth of straw of all kinds, and a liberal yield of turnips, mangels, &c., farmers will be able by the exercise of an enlightened economy, to sustain their stock through the approaching winter without difficulty, and bring their animals out in spring in good condition. We are glad to find that root-culture is constantly extending, in most parts of the country. The turnip matches which have been in operation for the last few years in different places have unquestionably been the means of extending the culture of that important root; and we are glad to find that similar attention is now being directed to the Belgian Carrot; the results of two or three competitions, for the present year, we hope to publish in our next issue.

We beg just to remind our readers of the importance of paying the closest attention to the manner of storing their roots, either in places constructed for the purpose, or in pits or clumps in the field. The best way, perhaps, is to put them into small lumps as they are pulled, covering them slightly with earth, straw, or leaves; and after the expiration of two or three weeks collect them into larger and permanent heaps. By such means the roots will not be so likely to ferment, if judiciously covered. We shall probably go more into details relative to these matters in our next.

Fall ploughing should now be prosecuted with all possible dispatch. The breaking up and exposing as large a portion of the surface as

practicable, to the action of frost, snow, and air, is a most beneficial practice, and is largely followed, in several parts of the country. Heavy lands are more particularly benefitted by being thus exposed in winter, and are found far more easily managed in spring; thus securing a finer tilth and an earlier seed bed. The underdraining of such lands as require that most efficient means of amelioration and permanent improvement, can, from want of funds, and other causes, be only gradually carried out. But much may be done towards the attainment of this important object by furrow draining, either with the plough or spade, so as to relieve the surface from any considerable quantities of stagnant water.

On the Non-contagious Nature of Epizootic Diseases.

BY PROFESSOR DICK, EDINBURGH.

(Continued from page 488.)

As already stated, when the report of the new plague or cattle pest reached this country, more than a year ago, my attention was directed to the subject, and, from the various detailed accounts of it in the newspapers, I came to the conclusion that it was an epizootic arising from some general cause or causes acting on the digestive organs of the cattle in the countries where it prevailed, and that, unless these causes existed in this country, the disease would not make its appearance here. As this cattle-pest had committed great ravages in the east of Europe, and was supposed to be approaching this country, and to be highly infectious, it excited great alarm amongst owners of stock. The alarm rapidly extended, and a proposal was made—by, I believe, the Royal Agricultural Improvement Society of Ireland, which was afterwards followed up by the Royal Agricultural Society of England—to send a veterinary surgeon to the Continent to investigate the nature of the disease. The Directors of the Highland and Agricultural Society having been solicited to join in the project, I was requested to attend a meeting of the Board to give my opinion on the propriety of joining in the expense of sending Professor Simonds, who had been proposed by the English Society. I stated that I considered such a mission to be unnecessary, as we could get every information regarding the disease from the veterinary surgeons on the Continent—a highly-educated body of men who had given the subject profound attention, and a translated *precis* of whose works would, it appeared to me, be more serviceable than any such mission as was projected. I moreover stated that I apprehended Professor Simonds' journey would prove to be a kind of wildgoose chase, and that he would probably have to travel far and wide before meeting with a case. The correctness of that opinion is shown by the report now published, Professor Simonds having had to travel nearly 1500 miles before seeing a single case. I had been led to form such an opinion from the accounts I had received of the disease, and particularly from the information I obtained in a letter from the Vice-Consul at Memel, near to which the disease had approached. In that letter it is stated—

"I could not be in a place more fitted to obtain for you the information which you desire, seeing that this celebrated cattle disease is at present within forty miles of us; and, moreover, the day after my arrival here, I was called upon by the Earl of Clarendon to answer the same queries, and obtain the same information as that now desired by you, and which I am now, of course, perfectly prepared to answer, having obtained the facts from the best and most authentic source. The symptoms of the disease are: The animal, when attacked, becomes extremely lively for a short period; the appetite is lost; the body trembles; the gums become inflamed; the eye becomes very dull, and discharges matter; the hair becomes very rough, and the glossy pile disappears. Towards the latter stages the animal suffers from severe diarrhœa, death ensues in from eight to twelve days. On dissection the food will be found, in the third stomach, a powdery dry mass. The stomach of the healthy animal is rose-coloured, but when attacked by the disease, it assumes a dark-red colour, and the veins become black. No cure is ever attempted for the disease in this district; but I am informed that, in various parts of Russia, the animal has been subjected to a process of *steam bathing* (that is, placed under the influence of steam), which has in several cases proved successful. The only method adopted in this vicinity to stop the progress of the disease is by immediately instituting a *military* guard round the farm or estate where it appears, and neither man nor beast is allowed to pass this guard until the last vestige of the disease has disappeared. The disease is undoubtedly contagious, and may be conveyed from one place to another by goats, or sheep, or even human beings. I have asked permission from Lord Clarendon to visit the district where the disease is at present raging, which, if granted, will enable me to give you more definite, although not more authentic, information. I shall be at all times happy to furnish you with any further particulars on the subject, if desired."

The symptoms detailed in the foregoing letter are very condensed, but they embody all those described by Professor Simonds. It specifies one prominent symptom, which has been in a great measure overlooked. In the letter it is stated that the animal, when attacked, "becomes extremely lively for a short period." This is given as a general symptom; but, with the ex-

ception of the second case which Mr. Simonds details, no mention of it is made. In that case he says, "the countenance, however, *was more animated than is generally seen*, even in the early stages of the malady." But if the symptom referred to be one which is "generally seen," its omission in his other cases and general summary is the more remarkable. On the contrary, he says, "the expression of the countenance does not denote much acute suffering." Among the first symptoms given in the first case, it is stated "there were tremors of most of the voluntary muscles." These "tremblings" affected the hind extremities most severely. The animal stood with back arched, and legs gathered under the body. *The head was extended*, ears lopped, and coat staring. She was remarkably dull, and greatly indisposed to move. On the second day she was dull and dispirited; and on the third day the conjunctiva uninjected, but the eyes somewhat intolerant of light; and on the fourth day her head drooped, and her eyes closed as in a state of drowsiness.

In the second case the animal stood with his back arched, his legs gathered under his body. There was a little turgesscence of the conjunctiva, but no intolerance of light. On the second day the eyes are heavy, and when he is down he appears sleepy. On the third day "the eyes are drooping, and a thick jelly-like mass, of a pale straw-colour, has accumulated at the inner angle of the eyes, yet the vessels of the conjunctiva are not turgid with blood. On the fourth day the discharge from the eyes and nostril is augmented in quantity; on the fifth day, discharge from the eyes and nostrils the same." In the third case we have the trembling and spasms, with discharge from nose and eyes; and in the fourth case the discharge was also present, and there was excess of fluid in the ventricals of the brain and spinal sheath. In short, discharge of lymph or mucus from the eyes is generally present, as stated in the foregoing letter; but we do not find in Mr. Simonds' description any mention of the inflamed gums, or the redness of their appearance. The change in the appearance of the coat is to be expected; and all agree that there is first diarrhœa, and then dysentery, producing death in from eight to twelve days.

In Professor Simonds' general summary we find that the "loser durre," or hard impactment of the third stomach, though it may be often present, is as often absent. That such appears to have been the case in some of the few cases he has examined, I have no doubt. In No. 1 he says there was no "loser durre." In No. 2, however, he says, "the contents of the omasum were *rather dry from* retention, but no structural change had taken place in the stomach itself." Would Professor Simonds tell us in how many of the "twenty other diseases" in which hard impactment of the third stomach takes place, he has found a structural change in the stomach itself? In his third case he states that there was some "rather dry ingesta" in the stomach; a similar state of things was met with in both the reticulum and omasum, but no true "loser durre." But he has forgotten to tell us what he means by true "loser durre." In the letter from Memel it is stated that "the food will be found in the stomach a powdery dry mass;" and Professor Simonds says, that "we have seen men of ablility, who have been called upon to make *post mortem* examinations, hesitate to pronounce a decided opinion of the existence of the pest, when the third stomach has been found healthy." Professor Simonds says that hardness of the contents of the third stomach is not a specialty attaching to the affection; can he explain why the opinion so generally prevails? As two out of the eight cases he examined had such a dryness of the contents from retention as to require notice, the cause which led to that retention might have been investigated; and, after having travelled 1500 miles, it is to be regretted that he did not extend his journey a little farther, and make inquiry as to the cause of the frequent suspension of the functions of the third stomach. The cases he gives are in my opinion anomalous ones; and the absence of the impactment of the third stomach appears, in some of the cases, to have arisen from the spontaneous discharge of the contents by increased secretions from the stomach. It appears, from the imperfect information furnished, either that the experience of Professor Simonds has been limited, or that the disease presents a considerable variety of forms. But whether there is impactment of the third stomach or not, I think Professor Simonds will allow that, from whatever cause it has arisen, the disease is one in which the digestive organs are chiefly affected; and it becomes us, therefore, to inquire whence the irritation has arisen which acts with so much virulence on cattle. Professor Simonds says: "It is difficult to speak with certainty of the true nature of the Rinderpest; but *it is evident* that the morbific matter on which it depends, having entered the system through the medium of the organs of respiration, soon acts upon the blood, by converting some of the constituents of that fluid into its own elements, and that, while this process is going on, the animal gives no recognisable indications of being the subject of the malady. This period constitutes the incubative stage of the disease." But suppose that, instead of the *cause*, or causes, entering the system through the organs of respiration (of which there is no evidence), it or they were taken into the stomach—or if the usual articles of food necessary for exciting the healthy action of the digestive organs, were either not to be procured or were withheld—is there anything very mysterious in these organs becoming diseased, either in a chronic or acute form? Is it not most reasonable to suppose, that if the food of cattle is of an inferior quality, or deficient in quantity, that the organs of digestion should be the first parts of the body most likely

to suffer? Common sense and every day's experience prove the fact. Infection, and infection alone, seems to be the leading cause—nay, the exclusive principle—referred to by Professor Simonds, to the neglect of every other cause, in explaining the origin and propagation of the Rinderpest. Almost nothing is said as to the kind of food on which the cattle he saw were fed, or the kind of exposures to which they had been subjected, or the fatigue they had undergone—in short, nothing like a description of the local circumstances under which the Rinderpest seemed to originate. He seems to have relied too implicitly on the opinions of the people as to its cause. No doubt he admits that the disease is said to be of spontaneous origin in the steppes of Russia, from whence it is spread all over the east of Europe; but in which steppe, or whether in all the steppes, he does not state. In the *Encyclopædia Britannica* it is stated, that in the steppe called Baraba, or Barbinska, a peculiar disease prevails, called the Siberian plague. In this steppe some lakes are salt, and occasionally the surface of the ground is covered with saline efflorescence. This is a peculiarity which would account for the spontaneous origin of any disease with which the bowels of a herbivorous animal may be affected; the superabundance of saline matter "occurring occasionally" would, as a matter of course, so impregnate the food, or would be taken in such quantities as to cause an epizootic with all the symptoms and effects on the bowels described by Professor Simonds; and hence, not improbably, the spontaneous origin in the steppes—if such a condition exists in the other steppes; but this, it may be said, will not account for its spread over the other countries of Europe. There are, however, evidently many other causes, and among these especially, the kind, quality, and quantity of the food must be considered as exercising an important influence in producing the disease. It is said to have followed the tracks of armies, and naturally so, not less from the destruction of food than the exhausting marches of a destroying invader. Without adverting to its effects, Professor Simonds gives a fearful account of the destitution in Kamienica. He says: "In consequence of the occurrence of this case, and of No. 1 in the same quarantine station, the commissioners determined to slaughter the rest, consisting of five head of cattle, reserving only the animal in question for our special purposes. This resolve was taken on May 8th, and was somewhat hastened by the circumstance that *all the animals were in a very low condition, and of little value.*" "The greatest difficulty also existed in procuring sufficient food for the animals; and poor women, the wives of the proprietors, could be daily seen standing in the mountain streams for hours together up to their knees in water, with scarcely clothing sufficient to cover their persons, washing couch grass which had been picked from off the land in order to feed these cattle. The step was doubtless rendered necessary by the circumstances; it was nevertheless most painful to witness the lamentations of the poor women on its being carried into execution." What *were* the circumstances? I say *the want of proper food!* Remove the cause and the effects will cease. Had the authorities ordered and enforced the importation of proper food, and given it to the animals, I have no doubt the disease would have subsided. No attempts, however, are made to effect a cure; it is considered so highly contagious that it is thought that the only way to prevent the spread of the disease is to kill all the cattle that come in contact with a diseased one, and hence the number of victims are enormously increased; but it is evident that if the disease depends on the food, the destructive remedy, while it must prevent the spread of the disease by the great reduction of the number of its victims, is an absurd and erroneous policy; for, if the view I have taken of the nature and causes of the disease be correct, it may both be prevented and cured.

I have already observed that one of the features of the disease, as generally understood, is an impactment of the third stomach, the "*loser durre*" of the Germans, as described by my correspondent at Memel, but of which Professor Simonds seems to have met with no well-defined case, and the causes may be accounted for among the steppe cattle which are brought from Russia. My opinion is, that those cattle which have been fed upon saline pasturages, and brought to other countries, where that kind of food does not exist, suffer from the entire want of the condiment that they have been accustomed to, the change causing indigestion and deficient secretion in the third stomach, the chief feature of the disease. There is superinduced, in consequence, irritation of the whole organs of digestion, with the inflammation and slight ulceration described. In the same manner, such indigestible matter as couch grass and other over ripe and woody herbage, cannot fail to act upon the digestive organs of cattle fed upon them, either by their acrimony, producing diarrhœa and dysentery at once, as appears to have been the case with the cattle Professor Simonds saw; or, if they possess a less acrimonious property, by simply drying up the secretions of the stomach; and this dry condition, after a short time, will begin to act as an irritant, producing diarrhœa and dysentery—the ultimate effect being nearly the same. The impactment of the third stomach frequently takes the same course in other diseases, as in redwater, depending upon the particular kind of herbage and the plants mixed with it destroying life by their action on the kidneys and digestive organs, and in which a diarrhœa almost invariably prevails in the early stages of the disease, while the third stomach will be found, on dissection, to present the true "loser durre." But other diseases occur, in which the omasum is found to be affected, and where most of the symptoms re-

ported in the Rinderpest are developed. In 1857 several reports reached me of cases of that kind; one gentleman in Dumfriesshire lost six oxen, in which the stomachs were so affected. Several recovered, but as I only saw one of them which was recovering, and soon got well, and as notes of the *post mortem* examinations had not been made, I can only form an opinion in that case by the state I found the one which was convalescent. Mr. M'Call, veterinary surgeon, when at Irvine in July last, wrote to me an account of some cases of an analogous disease which tend to show the spontaneous nature of the Rinderpest. He says: "On the 9th I was called to a case of a cow belonging to Mr. Weir, Meadowbank, Dundonald, which had been ill for three days. The symptoms were a staring coat, back arched, extremities cold, drawn under the body; pulse all but imperceptible; head and neck arched and drawn back, and a little to the left side; apparent paralysis of the optic nerves; *twitching of the muscles*, more especially of the facial; general trembling of the whole body; tongue hanging from the side of the mouth, but not paralysed; throat and lips in constant motion; mouth full of foam. The animal stands fixed in the same spot, occasionally moves the ears, but is unconscious; bowels irregular, fœces dark-coloured and voided in small quantities, but smell inoffensive. On the following day the animal was down, unable to move; head drawn to left side, trembling and *twitching* of the muscles; unconscious; fœces fluid, dark-coloured, and slightly offensive in smell: died that day. *Post mortem* examination showed the contents of the stomach pulpy. In the two first, little ingesta, but the other too full; in the fourth, here and there red congested patches, but no ulceration. Gall bladder distended; other viscera healthy. On the 15th July, at the same place, a second cow was attacked; respiration quick; *wild look; staggering gait;* secretion of milk gone; fœces fluid, and dark colored; does not ruminate; pain on pressure on the abdomen; pulse sixty, and weak; died on the 17th. *Post mortem* appearances the same as the first, but contents of the omasum hard. Third case at the same place recovered from the treatment adopted.

"A fourth case occurred at Ardurmains, near Ardrosan. Cow milked at 7 A.M., but gave little, and appeared giddy and moaning a little, but was sent to the field with the others. At eleven o'clock was observed to be pushing with hind quarters against the hedge, bellowing and foaming at the mouth. She was taken with difficulty to a straw shed; saw her within half-an-hour; her hind-quarters were pressed back in a corner of the shed; back arched; head elevated, and thrown back towards the back; general shivering and trembling; *twitching of the muscles of the face and anterior extremities;* coat staring; apparent paralysis of the optic nerves; bellowing, and foaming at the mouth; died in half-an-hour. *Post mortem:* lungs slightly congested; stomach, with the exception of the third, healthy. But between the layers of the many plies the contents were hard and dry, and so firmly glued to the coats, that most of the mucous membrane came off attached to the caked food, and the rest left the impression of the papilary surface on the dried matter. Brain healthy, and not presenting the slightest trace of inflammation.

"Other two cases occurred next morning early, with the same symptoms, but much mitigated, and they recovered under treatment in a few days. Another case occurred at a farm belonging to Mr. Howie, Kilwinning. Cow had been off her feeding for two days; had little passage in her bowels, and was bled; pulse forty-five, regular, but languid; grunting; extremities cold; coat staring; abdomen rather tympanitic, and pain with pressure; bowels constipated; was sent for six hours afterwards; found her bellowing, foaming at the mouth, blind, trembling, twitching of the facial muscles, and indeed all the muscles of the body, but more especially those of the fore extremities; head drawn back; hind-quarters pressed hard against the corner of the barn, into which she had been put. The whole body at times was in violent motion. She died in about an hour afterwards, and the *post mortem* appearance was found the same as those already described."

In what has been called Fardel-bound, the symptoms of the affection of the head seldom occur, but diarrhœa always ensues. Such cases as those related occur in many parts of the country during autumn, and appeared to arise from the dryness of the season, causing a want of water and a withered woody condition of the herbage—a condition which very probably existed where the Rinderpest prevailed, but of which, whether or not it did exist, we have no proper account. This condition of the herbage during last summer gave rise in many situations to what is commonly called stomach staggers in farm-horses. Now, if we look back to the description of the cases as given in Professor Simond's paper, and in the letter I have quoted, it will be seen that the most prominent symptoms are trembling of the body and twitching of the muscles. These are also prominent symptoms in Mr. M'Call's cases. The animals stood with back arched and legs under the body; the head extended, the coat staring: remarkable dullness, and indisposition to move. All these symptoms are also found in Mr. M'Call's cases. The eyes are somewhat intolerant of light, and afterwards were closed, and the animals were in a state of drowsiness. In the cases at Irvine the eyes became insensible to light; both cases, therefore, showing an affection of the brain, which was also manifested by the animals countenance "being more animated than is generally seen." In those cases related by Mr. M'Call the excitement of the brain is only a more prominent symptom, but which, by the

report from Memel, is always present. Hence we have all the symptoms of Rinderpest shown, except diarrhœa and dysentary, in those cases of Mr. M'Call's. The bowels, however, were in a loose state; and although diarhœa did not occur, it was apparently only in consequence of the animals having been cut off by the greater violence and rapidity of the disease. But diarrhœa and dysentery are nothing uncommon in this country, and are well known to arise from matters taken into the stomach. Hence these diseases, one of which is generally a consequence of the other, must have been produced by the food on which the animals are fed, perhaps combined with other causes, such as fatigue and want of water, or water of bad quality. These affections of the stomach and bowels at once explain all the other symptoms and conditions. The kind of discharge from the eyes and nostrils, the state of the blood, the flakes of lymph found in the air-passages and elsewhere, and the ulcerations, extending through the digestive organs, are only the natural consequences of the depletion and consequent weakness invariably produced by diarrhœa and dysentary.

From what I have advanced, as well as from the facts of the disease related by Mr. M'Call, and which occur every dry season in this country, I think it must appear that the Rinderpest and the disease I have noticed correspond; and as nothing like contagion has produced it in this country, neither can we be satisfied that it is so produced on the Continent, and I believe that it will ultimately be found to arise from causes similar to those prevailing here, and that we have a much safer guarantee against its being brought to this country than either the wholesale slaughter of the cattle, or the cordons drawn round the localities where the disease may have appeared. Instead of merely looking to the means of preventing contagion, we should endeavor to prevent the spread of those general diseases (which I contend are all epizootic) by investigating their causes, and adopting proper means for their prevention or cure. In many of these cases the simple allowance of a portion of common salt in the food, and sufficient WATER to assist digestion, will be all that is required, and ought to be generally adopted at the season of the year when disease is most apt to occur. Such a plan I recommended in the case of the cattle in Dumfriesshire, already mentioned, and I am informed, with perfect success.

It is a convenient and comparatively easy mode of accounting for almost any general disease by imputing it to contagion; but the measures taken, in consequence, may be very serious. In this country we have not, as yet, gone the length of destroying animals even suspected of taint, but very inconvenient restrictions were placed on various articles of produce, and, at one time, the farmer was threatenen with an advance on the price of his bonedust in return for an imaginary protection against disease. About a year ago there prevailed in Ohio a most destructive disease among swine, exhibiting many of the symptoms of Rinderpest; and because a corresponding disease broke out in some places in Scotland, as well might I, on contagion principles, attribute its introduction to the importation of hams made in Ohio, as suppose that the Rinderpest could be propagated by importing the hides, horns, and bones of cattle that had died of it in Germany. Let it not be supposed that this address is dictated by any desire to criticise Professor Simonds' Report. Though differing on the subject of contagion, I entertain a high respect for that gentleman; but I deem it my duty not only to direct attention to what, in my opinion, are the real causes of disease, but to allay, so far as in my power, an alarm, unfounded in itself, and inconvenient, commercially and otherwise, in its results.

Experiments on the Growth of Different Kinds of Flax, &c.

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Everything connected with the natural history of the Flax-plant is so generally interesting, both in an agricultural and economic point of view, and more especially in the commercial relations of this plant to the sister isle, that we take this opportunity of laying before our readers a detail of some experiments upon the growth of Flax, now in progress in our experimental garden at the Royal Agricultural College. We have this season four plots of Flax, each of two and a half yards square, which may be described as follows:—

Plot A. *Linum usitatissimum*, clean seed.
" B. *Linum usitatissimum*, dirty seed, and purposely sown with Dodder (*Cuscuta epilinum*,)
" C. *Linum perenne*, sown in 1855.
" D. *Linum perenne*, sown 1858.

A. At the the time of our writing, this plot is in full perfection, and nearly, if not quite, ripe; it is thirty-four inches in height, even in the rows, and apparently of very fine quality. It is remarkably free from weeds, which may be accounted for from the circumstance of the cleanest possible seed having been used, and, taken altogether, it is the best possible illustration of the value of clean seed.

B. This plot is at some distance from A, in order to avoid any possibility of admixture. It was sown with the like quantity of seed, but in a foul state, and besides there was mixed therewith, purposely, a small quantity of the seed of *Cuscuta epilinum*, the Dodder previously reported in our columns. In this case there is but about a quarter of a crop, and much of that is so borne down by the Dodder as to pro-

mise to be next to useless, and besides, the tallest of the doddered Flax-plants is only found to measure twenty-four inches. As the plot A, then, speaks so favorably of the clean seeds, so the plot B offers equally important evidence of the folly of sowing dirty seeds; and, besides, it shows how Dodder really is produced from seed like any other plant, seeing, that by sowing its seed, we can produce it at pleasure, and that it has been introduced with the crop-seed few botanists will doubt; for though it is found in most dirty Flax patches, yet it is not found elsewhere, and it is so little indigenous that though a Flax crop will sometimes scatter thousands of seeds of Dodder, yet the succeeding crop is not affected by it, nor do we think that if clean Flax-seed again took its place in the rotation, we ought to expect it to be doddered, as our experiments show that flax-seed when sown germinates as readily upon the accession of heat and moisture as any other seed; not having its foster parent near it dies in two or three days after germination.

C. The *Linum perenne* (perennial flax] has long been an object of our earnest attention, as we have been anxious, if possible to procure a truly perennial plant. In this we have fully succeeded, though the present example, from the time which it has occupied the plot, and the immense quantity of ripened plant and seed we have taken from it, now show evident signs of wearing; for it should be remembered that we have yearly taken a crop and restored nothing in the shape of manure, and hence its permanency is really a matter of surprise.

D. This, which was sown in 1858 from seed gathered from plot C, is in a most vigorous state of growth, measuring forty-one inches in height, and stooling out so plentifully that we counted as many as 147 stems to a single root. Thus, then, we conclude, that so far we have obtained a freely growing perennial flax plant. Its seed, however, is very small and comparatively useless. What its fibre may be we have as yet had no means of determining, but whatever its relative value in this respect when compared with the usual crop or annual flax, we feel quite sure that much may be done to ameliorate its characters in any direction in which this may be desired; and, as the changes which we have already affected in the appearance of the perennial flax in only two generations is so great, it quite leads us to the hope that still more important ones may yet reward further experiments. The nature of these changes have been reported to members of the British Association for the advancement of Science, from which we extract the following:—

"In 1854, I sowed one of my plots with seed of the *L. angustifolium* gathered at Hele, in Cornwall. It came up very well, and in 1855 might have been seen its plants in rows with branches a few inches long trailing along the ground, some with light, others with dark-blue colored flowers, somewhat small when compared with the *L. usitatisimum* or *L. perenne*. In this state it presented little to recommend it as a cultivated plant. In the past year it had advanced to a strong and vigorous *upright* plant, somewhat more than two feet in height, with handsome dark-blue flowers, indeed rivalling the *L. usisatisimum* in size and beauty. As regards its fibre, I have as yet had no opportunity to make experiments; but if in this respect it should equal the annual flax, I cannot help thinking that we shall have in the *Linum perenne* a plant of great economic value.

"As regards the specific distinction of the *L. angustifolium* or *L. perenne*, I must after these experiments express great doubts; nay, I am almost inclined to think that *L. usisatissimum* is but an annual form of *L. perenne*, so that this year I shall collect the seeds of my perennial patch with a view of commencing an annual cultivation. At all events, should I fail in proving this point, we may fairly expect other changes of great interest, seeing that so much has already been done in bringing a little straggling linseed from its wild habitat, and cultivating in a different soil and climate, not by imitating its wild conditions, but by making for it a new soil, and planting in rows, so that one row has the effect of inducing the upright growth of its neighbor—a fact readily seen in examining the growth of my plant as its shoots first start in a trailing method—a circumstance which shows that, in order to test the capabilities of some plants for a crop, we can only do so, not by growing single specimen examples, but by planting a quantity side by side.

"As subjects for experiment, it fortunately happens that the linseeds are readily affected by cultivative processes, so that we possess in them subjects capable of affording much information as the result of carefully conducted experiments, which leads me to remark that, as there are some tribes of plants which we cannot so easily act upon, permanency of our appointed species must not be concluded from the failure of our limited experiments, though, on the other hand, species must give way in those cases where, as the result of properly conducted experiment, the seed of one plant can be made to produce what has been considered as a distinctly specific form.

Watch Manufacture.

Our fame as a clock-making nation is world-wide, for where can we travel—in Africa, Australia, India, or China—that a Yankee clock is not to be found, reminding the inhabitants of "the land of steady habits." With regard to the manufacture of watches, we have also begun to do something creditable; still it is well known that the *works* of nearly all the watches sold in the United States are imported from abroad. The manufacture of cases for them is carried on extensively in a few places, but they are only lids to foreign mechanism, while a

great number of watches are imported entire. We are informed, upon reliable authority, that five times more watches are sold annually in North America, than in any other portion of the globe containing the same number of inhabitants. We ought therefore to be a punctual people, since we are so careful in our observations of "fleeting time." In 1857—before the "panic"—we imported watches and their works to the value of $3,281,000; in 1858, the importation was valued a $2,207,000, but since that period this business has been very dull.

A very useful little book on this subject has lately been produced by H. F. Piaget, of this city, a practical watch maker of 40 years' experience. He commenced his efforts at fabricating watchwork in Switzerland, when he was only seven years old; he also made watches in London for several years and has followed the same craft for a considerable time in America, so that he can speak authoritatively on the subject. The whole operations of a watch are dependent upon the retractile elastic force of a coiled steel spring—that is its moving power. The operation of moving the hands on the dial regularly, to measure time are due to devices which control the coiled spring so as to permit it to "run down," with regularity. A train of small wheels, gearing into one another, receives motion from one wheel on the spindle of the main spring; and this gives the requisite number of revolutions to the time hands on the dial. A watch is a very simple machine, so far as it relates to the *principles* of its operation; but the construction of its parts and their arrangement call forth the highest exercise of mechanical skill.

The above-named author says that the English were really the first successful manufacturers of watches, and that "all the escapements applied to good ones, whether at home or abroad, were invented by them." The best of these are jeweled with rubies, the art of boring which (for pivot holes) was discovered by M. Fazio, of Geneva, in 1790. He could not get his invention adopted in Paris, however; so he then went to London where he was well received. Rubies are the hardest stones which can be drilled, and are therefore the best for pivots; but garnets and various other crystals are used for the more common sort of watches; the English and American ones have generally a diamond jewel set over the upper part of the balance.

The Swiss are the largest manufactures of watches in the world, and all the cheap showy varieties which are seen in jewelers' windows are principally of their manufacture. From recent statistics which we have examined, the making of watches gives employment to 36,000 workmen in the Alpine Republic. England and Switzerland are the only countries which export their time-keepers to any great extent; those which come from the former are the most accurate in their movements; those from the latter are the neatest and cheapest, yet some of the Swiss watches have also a very high reputation as being accurate time-keepers. One of the very best and finely finished that ever M. Piaget saw had been made at Geneva, and was sent to California. The plates and bars for the wheels were of nickel, the wheels were of gold, it had a compensation ballance, an isochronal hair spring, and anchor escapement.

The opinion of an experienced and skilled artasan, as to the character of our American-made watches, is of great value. We are told by M. Piaget that "the American watch recommends itself for simplicity of construction, and it will be continually *improving* if the manufacture remains in the hands of persons who will make it of good quality without regard to the price." This is timely and appropriate advice; it is an injunction to strive for excellence rather than cheapness in such articles. The advice is particularly good, at this time, because very great efforts have of late years been made to produce cheap rather than good watches. When we consider that this country affords such an extensive market for foreign watches, it certainly opens a large field for those of domestic manufacture if they can be produced of equal quality at the same prices. This is a question for our people to solve. They have the natural mechanical genius to invent, and with patience and application they will finally succeed in this and in many other important branches of manufacture.—*Scientific American.*

Correspondence.

Pleuro-Pneumonia.

Editor Agriculturist,—The earnest and unremitting efforts which you are putting forth to inform your readers on this subject are extremely praiseworthy. To prevent, suppress, or counteract a disease which has made such fearful ravages in our herds wherever it has made its appearance, is an end much to be desired; and the individual, who by his undivided energies accomplishes that end, is as great a "benefactor to his country as if he had caused two blades of grass to grow where only one had grown before."

I can scarcely imagine what kind of an idea those people can have of diseases that are "catching," as they term them. I suppose it is some peculiar kind of *mythological* animals, which take their position in some portion of the animal organism and there continue to feast till a new object presents itself, or the life of the animal which they have attacked is extinct. After giving the matter a pretty thorough investigation, I am inclined to arrive at a similar conclusion to the boy who was asked "what is the earth's axis?" to which he replied, "it is an imaginary line running through the heads of old philosophers;" and possibly imaginary animals are ruuning through the heads of those who entertain such vague notions.

In a previous article I intimated, that where animals were subjected to the beneficial influences of Hygeian, in its various departments, they were not liable to be attacked with the disease; and the various articles on the subject which have appeared since, most of which convey the idea that it is contagious, have not changed the opinion which I then expressed. In the transmission of disease by contact two things are to be considered; first, the condition of the animal which transmits, and secondly, that of the animal which contracts the disease. If the effete matter, which is cast off from the system of a diseased animal by the depurating organs, is extremely poisonous, and the vitality of an animal, which exhibits no symptoms of disease, is impaired by impure blood, the latter would be likely to contract disease by contact with the former; but if the blood of the latter was in a healthy condition, containing no impurities, excepting what naturally results from the wear and tear of the system, it would not be likely to become diseased by contact with the former. Thus, *in proportion as the blood of an animal is vitiated will it transmit disease, and vice versa, in proportion as the blood of an animal is vitiated will it contract disease.*

The reason why Pneumonia appears like contagion in cattle, while it does not in horses and humans, is, that in the former more putrid or poisonous matter accumulates than in the latter. Their other habits being good, horses and labouring men digest their food better, and the exercise which they take makes respiration more thorough, and they exhale a greater amount of carbonic acid gas, their circulation is better, and the skin and other depurating organs expel more effete matter. This being taken away, their well digested food is properly assimilated; and, thus, they are kept in a healthy condition. The unnecessary exposure to which they are subjected by times, not unfrequently, produces pneumonia; but as soon as the circulation becomes equalized, there being little foreign matter in the system, the disease disappears, and there is no contagion to alarm the people.

Animals thus treated acquire large, well developed muscles, or a large amount of lean flesh with little fat. They have a slow and regular, but strong pulse; and the young produced by animals thus treated, are valuable for the large amount of vitality or life principle which they possess. If animals were thus treated from generation to generation, pneumonia, as well as other diseases, would soon become extinct, and elasticity and gracefulness of motion would lend their charms to a natural beauty, which no sculptor or painter could surpass.

On the other hand, cattle that are fed a superabundance of carbonaceous or fat producing food, with little exercise, and consequently a limited proportion of oxygen, presents the following picture: they do not take sufficient exercise, consequently their circulation is poor. For want of a vigorous circulation the effete matter, which results from the wear and tear of the system, is not carried off. This being left undone, proper assimilation is impossible, and the circulating system becomes full; the animal has a poor appetite and does not eat. Then, apparently to make the matter worse, it is given a dose of Thorley's, or other condition powders, which stimulate the digestive organs, creating an unnatural desire for food, while at the same time it diminishes the action of the depurating organs. Now the animal eats, looks plump, and is supposed to be well. Go back to where the animal has a poor appetite, and the following portion of the above scene is played over an indefinite number of times, with the conditions mentioned previous to that being nearly the same. —Now the system is full; nature will suffer such things no longer; natural function ceases; and the vital or life forces are set to work to expel this offensive and putrifying matter from the system. The circulation becomes rapid; breathing is short and quick; pure air, that great necessity is withheld, and the animal is forced to breathe the same viscid atmosphere over and over again. The internal organs become congested, with cough husky, eyes dull, extremities cold, hide bound, nose (with a view to furnish the lungs with oxygen) protruded, and the animal dies—by interposition of Providence —I suppose. Or it may have been killed by order, for there are certain bipeds clothed with authority; but of course none have been killed but those that have been knocked on the head.

Then follows the post mortem examination. The animal is opened; and what are the grand discoveries that are made? Did I say before the death of the animal that the internal organs were congested? How is a person expected to know that? Or that the *heart* has become *enlarged* by pumping such a current of filth through and through the system; or that the *lungs* had become *tubercalised*; or that there was *gangrene in various parts* of the system; and that there would be, almost immediately, a general *effusion* from all the *internal visceras.* Notwithstanding, it is found to be the case when the examination takes place. The above is no exageration of what has happened in more instances than one, in the year of grace 1860.

When animals that are hygeianically treated are attacked with pneumonia it is the result of a disturbed circulation; but when treated as previously described, it is the result of putrid filth, that has been suffered to accumulate in their life domain. Cattle in the same herds, and not unfrequently in the same neighborhood, are generally treated alike. And when one becomes attacked, what reason have we to expect that all will not be? If any do escape, it is because of their superiority of constitution; or, probably, some accidental hygeianic advantage with which they may have been favoured.

But let us examine the results, supposing that this unphysiological treatment is not carried to

a sufficient extent to produce pneumonia, or any other malignant disease. Under such treatment the blood becomes impure; the muscles become soft and pulpy; the lean flesh is wasted away; and its place is supplied by fatty matter. The young produced by animals subjected to such treatment possess a fund of vitality far inferior to the preceding generation. And this treatment continued for a few generations would destroy every valuable quality which animals should possess; and, ere long, young animals would not possess sufficient vitality to arrive at maturity. Indeed, can we make ourselves certain that, already, this disease may not be traced back to hereditary transmission? There is every reason to believe that it can be.

Some writers have intimated that government should take hold of the matter, and appropriate money to pay for cattle, which they think should be slaughtered, as soon as attacked, as well as to pay commissioners for making post-mortem and other examinations; *and cite us as examples the actions of the government of the State of Massachusetts for the current year, as well as that of the British Government of a century ago.*

Now, I would not protest against such a course without due consideration; but if we are to believe the reports which have appeared from time to time, stating the enormous losses that have been sustained since those appropriations have been made; I think you will agree with me, when I say, that the remedy is quite as bad as the disease.

When a case becomes desperate, prompt action is necessary; but, unless we act in the right direction, we may as well not act at all. We may as well remain a certain distance on one side of a mark and not act, as to go as far on the other side and do a good deal. In order that our actions should be in the highest degree beneficial, *we must come down on the scratch*, and then, WORK WITH A WILL. If legislative action become necessary, let sanitary laws be passed, based upon truly hygeianic and physiological principles, and then see that those laws are not violated; thus, by sustaining those laws, improve the health of our domestic animals, and through them the health of the people who partake of them as food.

To prevent or suppress this malignant disease, devolves itself upon every stock-raiser throughout the land, not only as a duty to himself, but to the community in which he lives. Then let every individual who has the care of stock, see that his stables are properly ventilated; that all miasmatic producing substances are removed to a proper distance from his cattle; that their food is of a purely healthy nature, and that it is given in proportion to the exercise which they take; that their water is what it should be; and that their daily exercise is not neglected. When these, and all of these things are strictly attended to, legislative action will be uncalled for.

Youmans, in his class book of chemistry, says that, "fat constitutes one-twentieth of the weight of a healthy animal." Then let stock raisers beware how they clog their animals with fat; but let them increase their weight by the developement of bone and muscle. This, under the present order of things, may be contrary to the demands of our pockets, notwithstanding, it is a preventive against pneumonia, as well as other diseases. I will hazard an opinion that Jonas Webb's herd of short horns will not be attacked with pneumonia, for it is evident from the story of his celebrated cow "Dodona" that he knows how to manage his stock, while the majority of stock-raisers appear to know how to mismanage theirs.

To suppose that an infinitely wise Creator would produce a piece of mechanism so wonderful in all its proportions (for examine the eye, the ear, the heart, the lungs, or any individual organ and we find it beautifully adapted for its function) as an animal, without, at the same time, instituting laws to govern it, would be akin to the grossest profanity. When animals were created, laws were instituted to govern them, and those laws cannot be violated without a penalty; and just in proportion as they are violated will sickness or death result.

Yours, &c., ISAIAH RIDER.

Pleasant Hill, Port Hope, C. W.
Oct. 8th, 1860.

The Provincial Exhibition. Judges and Exhibiters thereat.

EDITORS AGRICULTURIST,—It is with great reluctance that I impose upon myself the unpleasant task I have now assumed. In spite, however, of that reluctance, and of my repugnance at being a fault finder, when individuals have endeavoured to do their best for the public weal, I cannot refrain from offering some remarks and suggestions, when I am daily hearing all around me, the bitter and numberless complaints of exhibiters at the late Provincial Show, at the unjust decisions and awards of inexperienced and incompetent judges.

I believe it is fully and freely admitted on all sides, that there never was an exhibition of the industry of the country where such lamentable mistakes were made in the awards as at the late Provincial Fair, held at Hamilton, and the question is, *how* is the evil to be avoided in future?

I well know the difficulties which the Board of Agriculture has to contend with in securing the services of competent judges in the several classes of exhibiters; and I am equally aware of the various modes that have been tried to surmount those difficulties. The great trouble is, that in many of the classes, *the exhibiters* are the very men that are needed for judges, or in other words, we are shut out, by that very cause, from the services of the most competent men to be found as such. Hence the trouble the Board experiences in the selection it would

wish to make. This, there is no help for, and I would here suggest the procuring of judges, for some of the most important classes, from our cousins across the lines; but I am well aware *that* has been tried with ill success.

However, I do not quite despair of some improvement being effected on the present system of choosing the judges, provided more pains were taken by *the officers of the several county societies*, when applied to for judges, in making themselves more fully acquainted with the *actual acquirements* and *faculties* of the individuals they intend sending down to the different classes in which they are solicited to act. It strikes me there cannot have been the requisite and indispensable attention necessary, paid to this matter. The Board should also be better versed in the appropriateness of its application to different societies for such and such judges. For instance, it should not commit the error of sending into almost the backwoods for judges of Durham stock, or other improved breeds, as the great probability is, that there are not perhaps three men in the whole county or township with the *practical experience* requisite to become a judge in such important classes.* Nay, the probability is, that many not have bred or owned an animal in their whole lives of the breed they are required to adjudicate upon!

Again, with regard to implements, a judge should be not only a practical farmer, but a practical mechanic, to enable him to discharge his duty well and efficiently in such a class.

The same remark may also be applied to the class of grains—for instance, it does not follow that a farmer, who has not been in the habit of growing barley should be a competent judge of that article at a Provincial Show. Nor should a farmer, who has been accustomed for years to grow but one or two kinds of wheat, consider himself, (with perhaps very limited experience in the growth of that grain as well,) quite competent to decide upon so important a class as the Canada Company's, and the Society's prizes for that article. Indeed, such men should have honesty and resolution enough to decline the proffered honor, where, in some cases, they must feel the inward conviction of their own incompetency to discharge so onerous and responsible a duty. But in many instances the desire for a *judgeship*, with some men, is so powerful and overwhelming, that any consideration as to self-qualification is ignored altogether.

I could of course carry these observations to a much greater length, but it is not necessary; having alluded to the evil, and having suggested the only remedy that occurs to me at the present moment, I hope that some one else may be found able to throw more light thereon.

I can have little doubt, Messrs. Editors, that you will quite think with me, that there cannot be too much importance attached to the selection of competent judges! Indeed, it may be considered the mainstay of our agricultural societies—for who, let me ask, after a succession of disappointments and wrongs will continue to have resolution sufficient to impose upon himself the trouble, expense, anxiety, and, in some cases, severe loss which exhibiters are doomed to suffer.

There is one other circumstance which I shall think it necessary to allude to before I close my observations, connected with the duties of the judges in the several classes in which they are engaged. It is the permitting, and in some instances, almost courting the presence and interference of parties who are, themselves, exhibiters in such classes. Nay, to such an extent is this carried, that I have myself witnessed exhibiters accompanying the judges in the classes in which they are more immediately interested (particularly in stock) through the whole of their examinations. Can this practice, I would ask, be sufficiently deprecated?

The evil, I am sorry to observe, has not pertained to the Hamilton Show alone. I have witnessed it at other Provincial Shows, but it certainly ought not to be tolerated. We permit nothing of the kind in our county and township shows, and let us hope it will be effectually guarded against in future by the proper authorities at our Provincial Shows.

Hoping, Messrs. Editors, that the few remarks proffered, may be received with the same kindly feeling they are given, and prove productive of some good, I beg to subscribe myself,

A WELLWISHER TO THE PROVINCIAL SOCIETY.

County Wellington, Oct. 10th, 1860.

*No judges of pure bred stock were asked for, except from counties where such stock were known to be bred and owned.—ED.]

Communications from Practical Farmers Valuable—Grape Culture.

EDITORS OF THE AGRICULTURIST,—Now that the long evenings have arrived, I trust that many of your readers may be induced to use their pens, and communicate, through the columns of the *Agriculturist*, their experience and observations of another year. For the past two years I have been a subscriber to the *Albany Country Gentleman*, and no department of that paper was so much *relished* by the writer as that portion containing the "Correspondence." Nor do I believe that in any other way the same amount of valuable information could be brought together; for the simple reason that these facts and observations come from practical farmers, not theorists.

Believing that example is better than precept in this, as in every thing else, I shall, from time to time, (with your permission) address you. Not that I am so vain as to believe that I can enlighten the dullest of your readers, but that by enquiries and observations on what appears in your columns, I may induce others to communicate fragments of their hidden stores of knowledge.

I have read with avidity the correspondence relative to the introduction of grape culture into Canada. I may here mention that I visited a neighbor in August last, who had a vine (*catawba* I think) growing in the open air, which had several bunches of beautiful grapes upon it —this being the second year of planting. Feeling inclined to try a vine or two by way of experiment, I should deem it a favor if some of your correspondents would answer the following questions:—

One end of my house (30 feet wide) faces the south-west,—how would this exposure do for vines? and how many should I plant on a trellis that length, 30 feet? The soil is a reddish clay—pretty stiff,—but the subsoil being coarse gravel, it is naturally very dry. What would be the best preparation for the *border?*—best time for setting the plants, &c? and last, though not least, what is the hardiest grape, or grapes, if room for more than one?

I am thus particular in my enquiries, as I am inclined to think that the culture of the grape in this country, must, for some years, be confined to experiments on a small scale,—and upon these experiments will greatly depeud the solution of the question "whether Canada can become a wine producing country or not."

Experamentalists should therefore take every precaution to secure success, if that be possible —as the results will be a matter of no small moment to Canada's future wealth and happiness. H.

Peterboro, October 12, 1860.

Agricultural Intelligence.

American bred Bull Exported to Ireland.

We learn from a statement in the last number of the *Country Gentleman*, that F. W. Welsh, Esq., of Limerick, who has been travelling on this continent, and who is said to be himself a breeder of Shorthorns, selected from the celebrated herd of Mr. Thorne, one of Lalla Rookh's calves, by Grand Duke, six months old, for the sum of *one thousand dollars!* This is said to be the first instance of a Shorthorn, or any other pure variety bred in America, being carried back to Great Britain. It is a fact highly creditable to Mr. Thorne, and shows to what great perfection this noble breed can be brought on the western side of the Atlantic.

We also learn that Mr. Thorne has recently imported a splended South Down Shearling Ram, that obtained the first premium of the Royal Agricultural Society of England, from the world renowned flock of Mr. W. Rigden, of Sussex.

The Potato Crop in Scotland.—While the potato crop in England and Ireland this year is more or less seriously damaged by blight, that in Scotland is particularly good. It is said that Mr. Wallace, of Berwick Mains, in East Lothian, has made £4197 10s. by the sale of seventy-three Scotch acres of them. A very nice little sum of money from that quantity of land.

Migration of Seed.—In general, a change of seed from a colder to a warmer climate, if not too wide in latitude, is to be preferred to a change from a warmer to a colder. In cases of seed-wheat obtained from Essex or Kent to the Carse of Gowrie, mildew has appeared the first sowing, but not when re-sown. Was this the result of the spores of the blight being attached to the seed, or to delicacy from being grown in a warmer climate? In the case of the half of a field being sown with English seed fiom Kent and the other half with Scots home seed the same day, the growth of the English was to some extent blighted, and that of the Scots free from blight, both being white wheat very similar in variety, but when the produce of the English was re-sown no blight followed. I need not mention that a change of seed potatoes from Scotland to the south of England is highly advantageous; it is much more so to Spain, where the first and second planting give good quality; but, when replanted a few years more, the quality deteriorates, and the produce acquires the rank, disagreeable flavor and watery cucumber consistency of the common Spanish. The regular importation of seed potatoes into France, Spain, Italy, and even Germany, would be highly beneficial to these countries, and form a profitable export to Scotland. Change from higher altitude, as from the higher Alps and Pyrenees to these countries, might be advantageous, but the effect of high altitude is to dwarf the plant to some extent, and might not be so efficient in giving a higher tone of health and luxuriance as change from a higher latitude, where the plant during its summer growth is strengthened by greater length of day and continuance of the sun's rays—the great developer of superior life.—*Mark Lane Express.*

"Feeding Off" Beeves at the West.—A writer in the *N. Y. Daily World*, gives the following description of the process of turning corn into beef and pork with the least possible amount of labor:—

"It is a grand sight to go into one of those great corn farms at the west, and see how the proprietor manages with a herd of first class bullocks which he is preparing for market. A herd of them—steers and spayed heifers—of one, two or three hundred, is brought in from the luxuriant blue grass pastures, where they have been grazing all the past autumn and summer, fat and thrifty looking at a distance, in their beautiful

colors of red, white, spotted and roan, as they stand scattered or grouped on a rising plateau, like a vast bed of Tulips. Two large inclosed fields are appropriated to their use—one in which they lie and rest, the other in which they are fed. In the latter they have passed the night, and it is now morning. Soon after breakfast, which is an early one, one or more yoke of oxen are hitched into a large, long-reach wagon, two or three of them sometimes, if many cattle are fed, and with two men to each wagon, they go out into the corn-field, not far away, where the corn has been cut up near the roots and "stocked," in the previous October or November. The corn, with stalks and blades upon it as it grew, is thrown into the wagon in an immense load, and driven into the feeding lot, where the man on the load commences throwing it off, as the driver passes slowly along, and distributes it thinly over the ground for a long distance, in circles or in rows throughout the enclosure. When a sufficient quantity is distributed for the day's feeding, the empty wagon or wagons are driven out and taken to their proper place. A gate connecting with the adjoining lot where the cattle are resting, is then opened, and if they are not already at the gate, which they probably are, being ready for their accustomed meal, they are called, and immediately enter. They then commence feeding at the corn in the husk, and blade, where they occupy themselves for several hours, and until they have eaten all they will. No danger of hurting themselves, for the corn is of the soft "gourd-seed" variety, and the husks and blades masticated with it, the very thing for them. When they have eaten all they want, which is in a few hours, they show it in a disposition to lie down. They are then driven out to their resting field as before, and a drove of store hogs from the same enclosure are let in as scavengers, which pick up every kernel scattered or trampled upon by the cattle. Here the swine work for hours, thus saving all the corn which the cattle did not eat. Then, turned again where the cattle lie, they nose over their droppings, and take all the whole or unmasticated corn which passes through them, so that nothing is lost. We here should, at first sight, call that a wasteful way ot feeding; but when the value of the corn in the shock, the comparative value of labor and the distribution of such quantities of manure to enrich their future crops are considered, the practice is, no doubt, economical. In all weathers, in that mild climate, the cattle are thus fed, until the corn is expended, or they arrive at the point of their greatest value for market, which is at any time during the winter or early in the spring.

Disease in Wheat.—The *Rural Register*, Baltimore, notices that a new disease in the wheat plant prevails in Hanover county, Virginia. The symptom of disease is a rust in the leaf that destroys it. Last year it was thought that the heavy spring rains occasioned it. But this year it has been universally dry, and this rust is working as freely as it did last year. It has even been observed to spread among the grasses, and has been observed in pastures.

Horticultural.

Hints for the Garden.

The bright and varied tints of autumn's beautiful foliage are now fast fading away, and soon will unmistakeable signs appear that bleak and stern winter's sway is near at hand. The planting of trees and shrubs must now be finally concluded, and all operations connected with ground work as rapidly as possible pushed forward. Transplanting of evergreens had better be left till spring, and so had, perhaps, fruit and deciduous trees generally. A thorough preparation of the soil, the exercise of care in performing the operation, and of subsequent treatment, are among the indispensible conditions of success, in all kinds of transplanting. Where autumnal planting is from necessity delayed to a late period, pruning and shelter, combined with extra care in the subsequent treatment, will be found amply to repay in the results. With newly planted fruit or ornamented trees, or hardy herbaceous plants, a covering of muck or partially decomposed leaves around their stems, will be found particularly serviceable in preventing their roots being upheaved by the action of frost.

All the main winter crops, such as cabbage, turnips, beets, carrots, celery, &c., should be lifted and stowed away before frost sets in. Swedes and parsnips are not readily injured from this cause, and a portion of the latter it will be well to leave in the ground all winter, and they will come out in the spring, before renewed growth commences, quite fresh, and their quality unimpaired. A well ventilated *root-house* is an indispensible requisite in this country; although cabbages, Swedish turnips, carrots, &c., may generally be kept in pits in the open air, provided proper care is exercised in their preservation.

The present has proved the most productive season in fruit that we have experienced in Canada for many years. Apples, pears, and stone fruit generally, have proved unusually abundant, and of excellent quality. It has, however, been somewhat too cool for the proper maturity of open air grapes, which are generally small, and

of inferior flavour. Much skill and care are requisite in raising good fruit, and these requisites are likewise required in preserving it. Much of the fruit of this country is injured, and sometimes destroyed, by the bruising to which it is subjected in gathering, and afterwards in being stowed away in cellars that are either too warm or too cold. Apples should be thinly spread on shelves in a well ventilated room that will just exclude the frost, in an atmosphere a little moist to prevent their withering, and in a great measure excluded from light. Extra care in the gathering and preserving of fruit, especially of the choicer descriptions, will be found in the results amply to repay.

In the Flower Garden little now remains to be done but the clearing away of leaves and other unsightly matters, so as to leave the walks and borders clean; thereby giving, what is of so much importance in gardens, a tidy and agreeable appearance. Such flowering roots as require moving should ere this be taken out and carefully stowed away. Dahlias, Gladioluses, Tuberoses, &c., ought to be removed before their leaves and stems became affected by the action of frost, and gradually dried before they are finally stored up. Hyacinths, tulips, crocusses, and other bulbs intended for early spring flowering, should be carefully planted and protected in dry, warm borders, liberally treated with well decomposed surface soil, such as is found in woods, intermixed with manure from the cow-house. It is difficult to over estimate the influence of soil, manure, and treatment, on the size, color, and artistic appearance of flowers. The results brought out by some skilful and persevering cultivators are truly astonishing.

It is a practice much to be recommended, more particularly on heavy soils, to give the garden before winter sets in, a deep digging; exposing as much surface as possible, in a rough state, to the action of frost, snow, and rain. By such treatment the soil not only becomes more pulverised, and brought into a much better mechanical condition for working in spring, but it is actually sweetened and cleansed, and also impregnated with several fertilising matters, which, under other conditions, would be accessible only in a very small degree. In gardens that are wet, *thorough underdraining is an absolute necessity;* and not a day should be lost in commencing this essential operation. By this means an earlier and better seed bed will be obtained in spring, and the general temperature of the soil raised several degrees; so much so, indeed, as to allow of the successful cultivation of crops, which under other circumstances, would end in failure. The mulching of every kind of newly planted trees and shrubs, is a practice highly commendable, as it tends to prevent the upheaving of the roots by frost, and gradually imparts to them nourishment and support. It is a too common practice to leave the clearing up of gardens till spring, when there is commonly too little time to do the necessary work in good season. Nothing should be left till then, that can be done, and generally better done, now. Borders where necessary should be altered, walks repaired, and in short every thing accomplished to give a neat finish to the horticultural year, now so near its close.

Vines in City Yards.

Vines on trellises in city yards and small village gardens, may be most conveniently and profitably managed upon the single stem renewal system of training herein recommended. The borders for such vines in the city should, if possible, be formed of brick-work, detached from the adjacent cold, compact, and useless soil of the yard, and underdrained by tiles conducted into a cess-pool or culvert, in order to render them warmer and dryer, spring and fall; and a mulching of litter in summer will greatly assist in retaining moisture. Twice the number of vines will, of course, be grown as under the ordinary system, and only half of them fruited each year. Vines so managed will make an astonishing growth in a single season, often running to the hight of the tallest trellis, if well supplied with appropriate fertilizers; while the foliage of the fruiting and the growing canes will afford quite as much shade as vines grown with long branches in the ordinary way, and they can be much more easily and systematically trained, and produce more and better fruit. Vines on city trellises, allowed to ramble at will for the sake of shade, and sparingly fed with proper nutriment, seldom fruit for many years, and even when they do bear, the fruit is of little value. But when grown upon our system, with a good exposure, they will not only make ample shade, and present a pleasing object to the eye, but they can be made to produce large crops of the most delicious grapes every year.

The only variation that should be made in training for the high trellis, is this: the vine should not be stopped at the hight of four or five feet, but should be allowed to run to the full hight of the trellis, and if the wood to the full hight should not happen to be strong and

solid the first season, it should be cut back to the strong wood before fruiting the first time. After the vine gets older, it will make strong wood to the full hight of the tallest trellis, in one season, provided it be well fed with proper fertilizers. We think this system of training for city trellises will be much admired when it has once been tried.

VINES ON ARBORS.

Vines on arbors, in villa and cottage lots, and small gardens, may be trained upon our system with great satisfaction and advantage. Plant the vines two feet or less apart, and train with a single stem, as in the vineyard, and fruit every other cane each year. If the border be good, and well fertilized, the vines will run to the top of the arbor in a single season, and afford immediate shade and abundance of fruit, far surpassing, in respect to beauty and profit, vines grown in the common way.

Vines on old arbors may be renewed by layers from the old stock, and trained upon this system with great ease and success, entirely renovating the old vines, and changing the system of culture in one year, to the great delight of the owner.

A very pretty arbor may be made upon the south side of a barn or house, by planting posts two feet high, say four or five feet from the wall or barn, and running rafters from these posts to the barn or house, just like the rafters of a vinery. Strain wires lengthwise of this arbor, plant and train the vines on the inside of the rafters, and you have a sort of out-door vinery, (minus the glass,) a very novel and interesting object, and a very admirable method of growing grapes. The bunches of grapes, when vines are trained on this plan, will hang under the foliage, affording a degree of shade which is very useful to them, and a current of cool, moist air will constantly pass through the arbor, which is highly beneficial to the vines; for the Catawba grape especially, this would be an excellent method; and if the borders were slightly elevated, and well drained, so as to be easily dried off in the fall, a sure crop of fine, well-ripened grapes might be obtained, every year, from such an arbor, at least as far north as Philadelphia. Further north, it might be advisable to provide some protection against frost, such as an awning, which could be easily contrived for such a lean-to arbor. And here we may observe, that it will be found of great advantage, especially in working upon our system, always to bury your canes intended for fruit the next year, in winter, and to mulch well in very cold weather.

Arbors may also be made with roofs pitching both ways, like a spar-roofed vinery, instead of oval, with great economy and advantage, upon which vines will grow and fruit upon the one stem renewal system with great success.

Vines may also be grown, upon this system, tied to small stakes, say five or six feet high, set anywhere in a small lawn or garden, just as you would set out a dwarf cherry or currant bush, and much fruit may be obtained, of excellent quality, while the vines will form very pleasing objects in your grounds. Of course, two vines should be planted to each stake, one for fruiting, and one for growing wood; and, if you please, you may train them upon small pieces of wood nailed across the stakes, or, far prettier, upon the stump of a tree, or upon any sort of upright fancy trellises that your inventive faculty may suggest. This is a method of planting and training well adapted to any small piece of vacant ground in any yard or garden, where formal arbors or trellises would be inadmissable; and is quite as good a plan for obtaining fruit as any other, and more novel and interesting.—*Cincinnatus.*

Domestic.

Ærated or Unfermented Bread.—Within the last year or two it has occurred to a physician, Dr. Dauglish, that, by mechanical contrivance, the pure fixed air can be passed into the dough, and that flour unaltered by fermentation, untouched by any chemical, unpolluted even by the touch of any hand, can be made into a spongy bread. Having developed his plan fully, he took out a patent, and already, at Portsmouth, and at Dockhead, in Bermondsey, extensive factories are engaged in the production of an "ærated bread," which, as to its substance, is, we believe, bread made perfect, though it is possible that there may be hereafter developed a less costly way of making it. The patent is worked wholly by steam machinery, of which we cannot attempt to explain all the ingenious refinements. The main principle is easy to be understood. According to the way usually adopted in producing the same gas for soda-water, carbonic acid is formed in a large receiver, far away from the dough. Thence it is forced into a great copper cylinder, containing water, fixed over the mixing vessel. At a high pressure, which is maintained also by the forcing of the same gas within the mixing vessel, the water in the cylinder is supersaturated with gas—is made, in fact into soda water free from soda. In that state it is then allowed to flow through a pipe over the due relative proportions of flour and salt, under the highly-condensed atmosphere of the closed mixer. The mixer is a hollow globe of cast iron, in which iron arms are made to revolve on an axis turned by the steam engine. The gas remains fixed, still under pressure in the water. In three or four minutes, or more, according to the quality of the flour, the mixture of the soda-water is complete. The paste then passes out through a tube gradually widening, and the gas expands in every pore of the dough, as the pressure is removed. The dough instantly rises as it passes into the tins, or wooden measures, which a boy holds under the spout, cutting off the measure of each loaf as it descends, and

immediately placing it on the edge of the oven, which is on the other side of him. The floor of the oven is an endless chain, revolving on two drums, of which the pace is regulated in accordance with the size and character of the bread to be baked. The loaves placed on one edge of the oven immediately begin to travel through its regulated heat, and in due time are turned out exactly baked upon the other side, close to the open door, at which carts wait to carry the loaves to the shopkeepers. Until the bread is baked not a hand touches it. An hour and a half is time enough for the conversion, by this process, and with the nutritive elements of the flour wholly untouched. In the ordinary process, four or five hours are required for the mere raising of the sponge. This prolonged action of the warmth and moisture upon many kinds of flour—as flour from wheat gathered in wet seasons—otherwise wholesome, changes the starchy matter into dextrine, and after all produces bread dark colored and sodden. It is to correct so great an occasion of uncertainty and loss, which has always prevented capitalists from embarking in the baking trade, that alum has been used. The rapidity of the new ærating process wholly avoids this risk; the result never is uncertain, and good bread can be made of flour otherwise almost useless to the baker. The unfermented, or, as it properly called, ærated bread, made according to Dr. Dauglish's patent, being entirely free from the acid which is always necessarily present in fermented bread, has been found actually curative in that numerous class of diseases which result from acid secretions or an acid state of the blood. This freedom from acid causes the bread at first to appear somewhat insipid, but it soon asserts its value. One of the most eminent of our physicians kept a loaf of it for a fortnight, and then caused it to appear at his breakfast table with a baker's loaf of the preceding day. The unfermented loaf, old as it was, appeared to be the fresher of the two. Experience has shown that working men who used the ærated bread eat more of it—sometimes even half as much again,—making hearty breakfasts, and being at dinner-time less hungry for meat.—*All the Year Round.*

How I Made Sorghum Sugar.—A number of my neighbors having witnessed my success in making sorghum sugar, requested me to write out my process for the public benefit. If my experience is of any value, well; if not there is no harm done.

The sugar I send you is made from syrup manufactured last fall by Mr. John Donnan, of this vicinity. The cane was grown on sandy corn. Mr. Donnan took his cane to a Cook Sugar Evaporator, on an adjoining farm to be boiled down. As he only desired syrup for table use, it was made thinner purposely, than if intended for sugar. Happening to see some of it in May last, I said it would crystalize, if made a little thicker, and was told to try it. I did so; then set it away in a room at a temperature of 78°. In two days' time it was a mass of crystals, and in three days I set it to drain. The result you see.

In the manufacture of the syrup no lime or chemicals were used; and I put nothing into it whatever, when I undertook to crystalize it. Had the syrup been made thicker last fall, and set away in a room at the proper temperature, say 75° to 80°, it would have crystalized just as readily then as now.

I have been equally successful with other samples of syrup. The difficulty is in knowing when it is boiled just right, before it leaves the Evaporator. The best test I know of is the appearance of the syrup, when allowed to drip from a paddle. When it falls in rather brittle flakes, it will crystalize at once. When boiled to the proper consistency, it should be put into conical shaped sugar coolers, with a gate to draw off the molasses, after crystalization. When the syrup has crystalized, it should be allowed to drain twenty to thirty days; then spread upon a wooden platform, exposed to the sun's rays until the color and texture are satisfactory, being frequently stirred meanwhile. Sorghum sugar made in this way ought not to cost over two to three cents a pound.—*Ohio Farmer.*

Walter Caruthers.

Miscellaneous.

Watches.—In buying a watch, choose a lever, if you can afford it, and let it be as good as you really can afford. Buy it of a man who has a character to lose, and to whom you can look for redress in case of failure. Be suspicious of cheapness, and do not put too much faith in guarantees for a year or two years; because a flimsy made watch may go for a year or two tolerably well, and yet, before you have worn it five, may have cost you twice its value in repairs, and prove a torment and deluder instead of an honest friend and guide. In making your selection, do not be led by ornament—by fancy backs or dials, or "jewelling in ten holes." Ten holes may be jewelled for a guinea, and the watch be none the better for it. With a respectable maker, the absence of needless ornament is often a concomitant of superior work.

Having bought your watch, remember that it is worth taking care of. Wind it, as nearly as possible, at the same time every day, preferring the morning to the evening. Avoid sudden jerks in winding, and do not turn the watch while you are turning the key, but hold it firm and steady. Keep the key in good condition, free from dust and cracks; it is not a bad plan to plug the orifice; a particle of dust or rust in the key may get into the watch, and put you to the expense of an extra cleaning. Keep the key in your bed-room, not in your pocket.

When a watch is hung up, it should be supported and at rest; when laid horizontally, it should rest on a soft substance for support, or

the motion of the balance may generate a pendulous motion of the wheels, causing a variation in time.

When a watch varies from atmospheric influences, or from some change in the mode of wearing it, the hands may be occasionally set right, but the regulator should not be touched; if the watch gains or loses continuously, then the regulator should be altered; but it should be delicately handled, and moved but a little at a time. In setting the hands, it is best to set them forwards. In watches set or regulated at the back, the glass should not be opened at all. The watch-pocket should at all times be kept free from dust and accumulations of every kind.

Two years is quite long enough to keep a watch without cleaning. If you cannot consign it for that purpose to the hands of the maker, intrust it only to some respectable and responsible person. The very best watches are often ruined by the hands of blundering and incapable workmen, while even a bad watch may be made, by the treatment of a clever artist, to perform tolerably well.

Lastly, take a lesson from your watch. That little machine, if you have taken the above advice regarding it, will be found constantly doing its duty. Do you the same; work on with your life's work as that does, "unhasting and unresting." Let it teach you regularity and punctuality; so shall you not be ashamed to look it in the face, and be enabled, when your hours are all numbered, to give a good account of the time intrusted to your keeping.—*Country Gentleman.*

The Great Plains of America.—Mr. Wm. Gilpin, in a recent book on the Central Gold region, maintains the idea that the great Western plains, where he has spent twenty years, instead of being *a desert*, as is the common impression, are the opposite, forming the pastoral garden of the world, and the basis of the future empire of commerce and industry of this Continent. They occupy a longitudinal parallelogram of less than 1,000 miles wide, extending from the Texan to the Arctic coast, and from the Rocky Mountains to the western border of Louisiana, Arkansas, Missouri, and Iowa, an area equal to the surface of twenty-four States between the Mississippi and the Atlantic, without a single abrupt mountain, timbered space, desert, or lake. There is no timber on this area, and single trees are scarce.

The soil is not silicious or sandy, but a fine calcareous mold. The country is thickly clad with grasses, edible and nutritious, through the year, and swarms with animal life. The climate is comparatively rainless; the rivers, which abound, aud which all run from west to east, serving, like the Nile, to irrigate rather than drain the neighboring surface. From their dimensions and position the author thinks they are to be the *pasture fields of the world*, and that upon them pastoral agriculture will become a separate department of national industry. On this belt of perennial pasture are found the infinite herds of cattle peculiar to North America, whose aggregate number, it is estimated, exceeds one hundred million, the buffalo alone being as numerous as the American people. The plains embrace an ample proportion of arable land, which may be easily and cheaply watered by the various systems of irrigation, and the soil being alluvial and calcareous, returns a prodigious yield. They abound in fuel, and materials for dwellings. The climate is favorable to health and longevity, intellectual and physical development.

California Farming.—On the mammoth farm about fifteen miles from Sacramento, in Yolo county, partly owned by General Hutchinson of the St. George Hotel, was produced, this season, one thousand acres of wheat, one thousand acres of barley, and eighteen hundred tons of hay. The full yield of wheat averaged thirty, and barley forty bushels to the acre; the produce is estimated at 60,000 bushels, at $1.50 a bushel, or $80,000. The hay would foot up $20,000. Thus this farm will yield a total of $100,000 this year. The California Farmer states that the sales of fruit from the farm of G. G. Briggs of Marysville, last year, "were greater than any gold mine in California, amounting to over $100,000."

The Lesson of the Leaf.—We men, sometimes, in what we presume to be humility, compare ourselves with leaves; but we have as yet no right to do so. The leaves may well scorn the comparison. We who live for ourselves, and neither know to use nor keep the work of past time, may humbly learn—as from the ant, foresight—from the leaf, reverence. The power of every great people, as of every living tree, depends on its not effacing, but confirming and concluding, the labors of its ancestors. Looking back to the history of nations, we may date the beginning of their decline from the moment when they ceased to be reverent in heart and accumulative in hand and brain; from the moment when the redundant fruit of age hid in them the hollowness of heart, whence the simplicities of custom and sinews of tradition had withered away. Had men but guarded the righteous laws and protected the precious works of their fathers with half the industry they have given to change and to ravage, they would not now have been seeking vainly, in millennial visions and mechanic servitudes, the accomplishment of the promise made to them so long ago: "As the days of a tree are the days of my people, and mine elect shall long enjoy the work of their hands; they shall not labor in vain, nor bring forth for trouble; for they are the seed of the blessed of the Lord, and their offspring with them."

This lesson we have to take from the leaf's life. One more we may receive from its death. If ever, in autumn, a pensiveness falls upon us as the leaves drift by in their fading, may we

not wisely look up in hope to their mighty monuments? Behold how fair, how far prolonged, in arch and aisle, the avenues of the valleys—the fringes of the hills! So stately—so eternal; the joy of man, the comfort of all living creatures, the glory of the earth—they are but the monuments of those poor leaves that flit faintly past us to die. Let them not pass without our understanding their last counsel and example; that we also, careless of monument at the grave, may build it in the world—monument by which men may be taught to remember, not where we died, but where we lived.—*Ruskin's Modern Painters.*

A Glass that will not bear the Morning's Reflection.—An American has patented a glass in which a man can see himself as plainly as others see him. At present he has not sold a single speeimen, for everybody who has looked into the glass will not believe that the plain object before him could possibly be himself. Loud and bitter and unmitigated has been the disgust and indignation of everybody, and the consequence has been, that the poor American, believing in his innocence that the object of the world was to arrive at the truth, has lost largely by his foolish speculation. He is now trying his hand on a glass that flatters, and expects in a very short time to realize a considerable fortune. To the ladies he intends charging double, for he knows well enough that, let them be ever so beautiful, they will never be able to do without it. He has not yet fixed the price for girls who squint.

Education of the Young.—The *Scientific American* referring to the fact that children are overtasked with school studies, says:—A New York school commissioner, with leather lungs and a cast iron head, may insist that a child who has been boxed up six hours in school shall spend the next four hours in study, but it is impossible to develope the child's intellect in this way. The laws of nature are inexorable. By dint of great and painful labor, the child may succeed in repeating a lot of words, like a parrot, but, with the power of its brain all exhausted, it is out of the question for it to really master and comprehend its lessons. The effect of the system is to enfeeble the intellect even more than the body. We never see a little girl staggering home under a load of books, or knitting her brow over them at seven or eight o'clock in the evening, without wondering that our citizens do not arm themselves at once with carving knives, pokers, clubs, paving stones or any weapons at hand, and chase out the managers of our common schools, as they would wild beasts, that were devouring their children. Indeed, they are worse than wild beasts, for those destroy only the body, but these fiends consume both body and mind of the helpless innocents who fall into their clutches. In Boston, the system of studying out of school has been prohibited in relation to the girls, and we should be rejoiced to see this city take the lead in extending this prohibition to all the scholars. We are very glad to see that the time for gymnastic exercise is to be taken from the study hours, and not from those given to play, "Experience having shown," says the Superintendent, "that the scholars learn more when a portion of the time is given to these exercises than when all is devoted to study."

Air.—No fact is better understood than that of the necessity of air for securing life and growth to crops; but the functions of the atmosphere, and all the advantages arising directly from its influences, are not so well comprehended.

The face of Nature is continually giving off excrementory matters, which are taken up in the atmospheric ocean and carried from place to place; the falling of dews and rains abstract these from the air and returns them to the earth for re-assimilation. During a drouth the moisture parted with from the soil prevades the atmosphere, which, in circulating through well and deeply disintegrated soils, is brought in contact with particles colder than itself, and not only deposits moisture upon their surfaces, but this moisture is fully charged with those volatile matters which act as an excitant, enabling water to dissolve the inorganic portions of the soil. In Winter the water occupying the immediate surface becomes frozen, thereby destroying thousands of insects; when thawed in early spring, it has the capacity of receiving many times its volume of such gases as are given off by decaying vegetation, and carrying them into the roots of new organisms for re-appropriations. The motion of the atmosphere above the surface of the earth not only takes away excessive heat from plants, but as it passes over the leaves and other termina, it causes partial vacuum in the capillary tubes of each plant, thus securing the elevation of moisture received by the roots. It is the medium by which the *farina fecundi* of plants is carried from place to place, and when trees and plants are swayed by its motion, it renders each in degree an Hungarian pump, with every capillary tube acting as a distinct pump barrel for the elevation of fluids from the soil into the body of the tree, where the endosmose action detain them. By this infinite mode of analysis, the primaries and proximates necessary to build up certain portions of the plant are supplied, permitting other matters in solution to pass on and in turn deposit themselves where needed. The refractory force of the atmosphere prevents the sun's rays from being destructive of plant life. It is the vehicle of the organic excretia, as well as of water, and while the surface of every particle of soil to the depth at which the atmosphere can circulate, is covered with moisture by its presence, it furnishes to these particles the necessary gases for securing such chemical changes as will gradually convert the inorganic and inert portions into suitable

pabulum for plant growth. We need not explain its exosmose action, for every leaf gives evidence of the importance of this function. To animals it is still more important than to plants. By respiration oxygen is supplied to the blood; indeed, no function of the animal economy can perfect itself without the presence and sustenance of atmospheric air. Even when dilated, as at great elevations, still the animal respires the larger bulk to get the same amount of oxygen, and the very atmosphere, that in its delated condition abstracts the heat at the mountain tops and creates their caps of snow, when descended to their base is compressed in figure and gives out as present heat, that which was before latent, thus increasing the verdure of the valley. None of nature's laws could be exhibited without the intermediate office performed by the atmosphere. The very life-principle would be inert without it; men, animals and plants, would cease to exist, and the universe itself would become a chaotic mass of death and darkness.

Plums and Gages.—What is the distinguishing difference between a plum and gage? is the gage round and plum long? J. W. L.

All gages are plums, but there are some plums which are not gages. The term gage, originally from the name of the man who introduced the Queen Claude into a part of England where it was unknown, is generally understood to apply to plums of moderate size and rather rich quality, varying, however, in form and color. The Green gage is round, the Imperial gage is oval. The former is green, the Yellow gage yellow, the Purple gage violet, &c. But the term is never applied to very large, or very coarse plums, nor to that peculiar class known as *prunes*.

The same or a more obscure meaning attaches to the term *pippin* among apples, the Fall pippin being very large, the Golden pippin very small; the Newtown pippin is green, the Ribston red, the Dawnton yellow, &c.; the Sugarloaf is oblong, the Michael Henry conical, the Vandervere pippin flat; the Blenheim pippin sweet, the Ribston sour, &c., the term, in fact, applying to all apples of whatever size, form, color or quality.—*Country Gentleman.*

Pugilism in Scotland in the olden times.—Douglas, Duke of Hamilton, who died about the close of last century, was a great patron of pugilism, and took pains for instructing the young men in Hamilton in the art, if so disposed. But he soon found that there was no need of any patronage of his to promote that branch of science. He brought down from London, Mendoza, a celebrated bruiser of his day, who challenged any one in the county to the conflict. The challenge was accepted by a young tenant of his Grace's, James Bocham (Beauchamp?), of Clydesmill. At the first onslaught, James knocked in all his antagonist's guards, broke two of his ribs, and having thus summarily settled the matter, he turned to the Duke and asked, "Has your Grace ony mair o' thae Mendoza bodies?"—*Mark Lane Express.*

How to treat the Bite of a Dog.—Dr. Stephen Ware, of Boston, in his testimony in a recent case which grew out of the injuries from the bite of a dog, furnished the following valuable advice:—In the case of a bite by a dog where the teeth of the animal penetrated the flesh, whether the dog was known to be mad or not, he should use the same precautions. We would wash the wound with warm water, extract all the virus possible by sucking the wound with his lips, and then cauterize it deeply with the caustic most readily obtained, but should use potash if it could be procured at once. The time in which the effects of the bite of a mad dog would be seen, varied from two to three days to as many years, but if no effects were felt after two or three months, as a general thing the patient might consider himself safe. Bites made through clothing are seldom productive of much harm, as even if the dog is mad the clothing absorbs the virus before the teeth reaches the flesh. Most of all the fatal cases are where the person was bitten on some naked part. Concerning the possibility of a cure in a real case of hydrophobia nothing was said.

The Perils of Science.—Some years ago a large whale was caught at the Nore, and towed up to London-bridge, the Lord Mayor having claimed it. When it had been at London-bridge some little time, the Government sent a notice to say it belonged to them. Upon which the Lord Mayor sent answer, "Well, if the whale belongs to you, I order you to remove it immediately from London-bridge." The whale was therefore towed from the stream to the Isle of Dogs, below Greenwich. The late Mr. Clift, the energetic and talented assistant of his great master, John Hunter, went down to see it. He found it on the shore, with its huge mouth propped open with poles. In his eagerness to examine the internal parts of the mouth, Mr. Cleft stepped inside the mouth, between the lower jaws, where the tongue is situated. This tongue is a huge spongy mass, and being at that time exceedingly soft, from exposure to air, gave way like a bog; at the same time, he slipped forward towards the whale's gullet, nearly as far as he could go. Poor Mr. Clift was really in a dangerous predicament; he sank lower and lower into the substance of the tongue and gullet, till he nearly disappeared altogether. He was short in stature, and in a few seconds would doubtless have lost his life in the horrible oily mass, had not assistance been quickly afforded him. It was with great difficulty that a boat-hook was put in requisition, and the good little man hauled out of the whale's tongue.—*Buckland's Curiosities of Natural History.*

Grass to the Window.—There is all the difference in the world between the shadiest and the greenest public garden or park, even within a hundred yards of your door, and the green shady little spot that comes up to your very window. The former is no very great temptation to the busy scholar of rural tastes; the latter is almost irresistible. A hundred yards are a long way to go, with purpose prepense of enjoying something so simple as the green earth. After having walked even a hundred yards, you feel that you need a more definite aim. And the grass and trees seem very far away, if you see them at the end of a vista of washing your hands, and putting on another coat and other boots, and still more of putting on gloves and hat. Give me the little patch of grass, the three or four shady trees, the quiet corner of the shrubbery, that comes up to the study window, and which you can reach without even the formality of passing through the hall and out by the front door. If you wish to enjoy nature in the summer-time, you must attend to all these little things. What stout old gentleman but knows that when he is seated snugly in his easy-chair by the winter-evening firside, he would take up and read many pages in a volume which lay within the reach of his arm, that he would do without the volume if, in order to get it, he had to take the slightest trouble of rising from his chair and walking to a table half-a-dozen yards off? Even so must nature be brought within the easy reach of even the true lover of nature; otherwise, on a hundred occasions, all sorts of little fanciful hindrances will stand between him and her habitual appreciation.—*Fraser's Magazine.*

The Leech a Barometer.—A gentleman who kept a leech in a phial of water hung by his chamber window, says:—"If the leech lies coiled up and motionless at the bottom of the glass early in the morning, the weather will be fair; if we are to have rain, it will creep to the top of its lodging, and remain there till the storm is over; if wind, it goes galloping over the water, till the wind begins to blow; if thunder, it lodges out of the water, is uneasy, and has frequent violent throes and convulsive motions. The leech was kept in an eight-ounce phial, three-fourth filled with water, changed once a week."

New Zealand—Summary of Native Produce.—The quantity of timber hewn and sawn, which was sent out of Auckland in one year was 3,418,483 feet, and it was sold for nearly £20,000. There are numerous tracts of pasture land which yield large quantities of wool, every year rapidly increasing. The quantity of land under cultivation and fenced in is very nearly 100,000 acres. At the close of 1856 the exact quantity was 83,819 acres; of this extent, there were 2,255 acres laid down for wheat, 131 for barley, 1,548 for oats, 305 for maize, 2,106 for potatoes, 55,648 with sown grass, 916 were gardens and orchards, and the remainder various crops. The desire to possess land is every year increasing. On the 30th April last, the quantity of land already surveyed and opened for sale or selection was 27,760 acres; on the 31st May 31,551 acres; on the 30th June, 34,273 acres; on the 31st July, 35,302 acres; on the 31st, August, 31,041 acres. On the 23rd of August, 8,024 acres were gazetted for sale or selection on the 3rd of October. On the 19th October, 7,989 acres in addition were gazetted for sale or selection on the 21st day of November.—*New Zealand: Handbook for Emigrants.*

A Little Farm Well Tilled.—The words at the heading of this article are worthy of much consideration. The great hinderance to a successful cultivation of the soil is in the meaning of the words, *a big farm untilled.* A few acres of land well dressed and well attended will produce abundantly more in proportion than a large tract of land illy cared for. To prove this assertion, we need not look farther than a good garden, and compare its produce, its value, &c., to a like quantity of land on the farm. A small farm, with good care and ample manures adapted to the soil, will vastly more remunerate the farmer for his labor, than sowing to the whirlwind over a territory of as many acres as there should be roods in a farm. Then, again, there are obvious advantages in a small place. Much more time can be devoted to adorn the homestead to make it attractive—lovely to children. Such a home as the whole household will reverence, by the associations clustering around the spot of early childhood, by those strong attachments of which the poet declares—

"His first, his best is ever at home."

There is no allurement in a big farm; all fascination is lost in vexation, trouble of one sort after another, in looking at every point of the compass to see if the "wheel in the wheel" is operating to advantage. With an increase of acres comes increase of cares is a truthful saying, because more tillage is then needed, more fences to be kept in order, and everything relative to good husbandry must of necessity claim greater attention. A little farm, then, with few cares, is a mine of wealth, a patrimony that kings might envy but cannot possess, because wealth is too poor to buy the solid comforts of the farm house. *Till little and well,* is a motto that should ever be kept in mind, and if duly practised will be a sure passport to successful farming operations.

An Invariable Rule.—When an M. P., at an agricultural dinner, or a cutlers' feast, or a county gathering, or an archery meeting, tells you that he is not going to intrude politics, because politics by the rules of society are excluded, you may be sure that he is on the point of introducing them, and that he will do so the very next minute; and, furthermore, that he will talk of nothing else but politics during the remainder of his speech.

THE ANNUAL MEETING OF 1860.

The Annual Meeting of the Directors of the Association took place on Friday, 21st September, in the Committee Room on the Show Ground, at 10 a. m.

The President, John Wade, Esq., in the chair.

Messrs. Hugh C. Thomson, Secretary of the Board of Agriculture, and Wm. Edwards, Secretary of the Board of Arts and Manufactures, joint Secretaries.

Members of the Board of Agriculture present :—

Messrs. E. W. Thomson, H. Ruttan, D. Christie, G. Alexander, R. L. Denison, A. A. Burnham, W. Ferguson.

Members of the Executive Committee of the Board of Arts and Manufactures :—

J. Beatty, M.D., J. E. Pell, B. Walton, W. Craigie, M D., J. B. Hurlburt, LL.D., T. Sheldrick.

Delegates from County and Electoral Division Agricultural Societies, and from Horticultural Societies :—

Addington—Mr. Lake, Mr. Scott.

Brant West—Wm. Thompson, James Maxwell.

Bruce—Wm. Withers, M. McPherson.

Dundas Co.—I. S. Ross.

Durham East—J. B. Choate, John Foott.

Durham West—M. Joness, Robt. Beith.

Elgin East—Daniel Black, James Armstrong.

Elgin West—James E. McKinley, Mr. O'Malley.

Frontenac—Ed. Jackson, Anth. McGuin.

Glengary—A. McNab, Duncan McDonald.

Halton—W. C. Beaty, H. M. Switzer.

Hamilton—H. J. Lawrie, George Roach.

Hamilton Horticultural Society—Isaac Buchanan.

Hastings North—Mattaniah Kerr.

Hastings South—Thos. Wills, Jas. Brown.

Huron—Robert Gibbins, Robt. Cooper.

Kent—Rich. Monck. Robt. J. Earl.

Kingston—Thos. Kirkpatrick, Thomas Wilson.

Lanark North—John Baird.

Leeds North and Grenville—G. Leehy, H. Williams.

Lincoln—J. C. Rykert, J. W. Lewis.

Middlesex East—James Johnston, M. Holmes.

Middlesex West—Thos. Moyle, James Keefer.

Middlesex Horticultural Society—W. L. Lawrason, J. B. Smith.

Niagara—F. G Nash, James Brown.

Norfolk—Oliver Blake, Wm. Wilson.

Northumberland East—G. S. Burrill, W. Humphreys.

Northumberland West—Henry Battell, P. R. Wright.

Ontario North—George Brabazon.

Ontario South—James Pile, Geo. Robinson.

Oxford North—John Dunlop, Wm. Grey.

Oxford South—W. S. Light, R. Pierson.

Paris Horticultural Society—Hugh Finlayson, Charles Arnold.

Perth—W. F. McCulloch, James Woods.

Simcoe South—G. D. Morton, S. Tyrwhitt.

Toronto—Hon. G. W. Allan, G. D. Humphreys.

Victoria—John Gibs, Geo. Batemen.

Waterloo South—Daniel Tye, Jas. Cowan.

Welland—A. K. Scholfield, Jno. Ker.

Wellington North—J. M. Frazer.

Wellington South—Geo. Murton, Arthur Hogge.

Wentworth North—Thos. Stock, Jno. Weir.

Wentworth South—Wm. Freeman, Jas. Heslop.

York East—J. P. Wheler, Geo. Miller.

York West—A. Shaw, P. Armstrong.

Members of the Board of Arts and Manufactures, delegated from Mechanics' Institutes and Boards of Trade :—

London—W. Bowman, E. Leonard, Daniel Farrar, Charles Hunt, W. McBride, Murray Anderson.

Toronto—W. Edwards.

St. Thomas—H. Caldwell, H. Brown.

Hamilton—Dr. Rosebrugh, W. Birkett.

Woodstock—Thos. J. Cottle, M. D.

Dundas—Geo. Bickell, Duncan McMillan, W. McDonald.

Oakville—Geo. K. Chisholm.

Moved by Mr. E. W. Thomson, seconded by Mr. A. A. Burnham,

That Jno. Barwick, Esq., of Woodstock, be President of this Association for the ensuing year. Carried.

Moved by Mr. P. R. Wright, seconded by Mr. J. Battell,

That F. W. Stone, Esq., of Guelph, be 1st Vice-President for the ensuing year. Carried.

Moved by Mr. Ruttan, seconded by Mr. P. R. Wright,

That A. A. Burnham, Esq., of Cobourg, be 2nd Vice-President.

Moved by Mr. J. Johnson, seconded by Mr. H. J. Lawrie,

That W. S. Light, Esq., of Woodstock, be 2nd Vice-President.

Moved by Mr. T. Wilson, seconded by Mr. J. Buchanan,

That Thos. Kirkpatrick, Esq., of Kingston, be 2nd Vice-President.

It was then decided that a poll should be taken of the votes for each of the persons proposed, which being done, there were found to be—

For Mr. Burnham..... 42 votes.
For Mr. Light..... 30 "
For Mr. Kirkpatrick ..... 20 "

Mr. Burnham was then declared to be elected.

Moved by Mr. Thomson, seconded by Mr. Armstrong,—That R. L. Denison, Esq., be re-elected Treasurer. Carried.

Moved by Mr. Oliver Blake, seconded by Mr. Wm. Ferguson,—That the next exhibition of this Association be held at the City of London.

The Mayor of London, Mr. J. Moffatt, being present, was requested to state what proposition the City of London was prepared to make in reference to the accommodations for the exhibition.

The Mayor then addressed the meeting, and submitted the following document:—

Extract from the Minutes of the proceedings of the Corporation of the City of London, on Monday, 17th September, 1860.

From "Report of Committee."

"That His Worship the Mayor, and a Delegation be appointed by this Council to attend the Provincial Exhibition this week in Hamilton, for the purpose of endeavoring to have London fixed for 1861, and that a snfficient guarantee be given to said Delegation with the City Seal attached, for the necessary buildings and accommodation for holding said Exhibition."

Received and adopted.

Moved by Alderman McKenzie, seconded by Councillor Hughes,

That Messrs. Garratt, Stead, and Flock, be appointed a Special Committee authorized to give the necessary guarantee for obtaining the Provincial Exhibition at London, in 1861, and that the City Seal be attached to this resolution. Carried.

[A true Copy.]

ALEX. SABBATT,
City Clerk.

London, 18th September, 1860.

Endorsed. { J. H. FLOCK, *Alderman.*
EDWARD GARRATT, *Alderman.*
CHAS. STEAD.

Moved by Hon. Mr. Allan, seconded by Mr. Switzer,—That the Mayor of Toronto be heard in reference to the exhibition being held at that city next year. Carried.

The Mayor of Toronto, Mr. A. Wilson, then stated verbally, that the City Council of Toronto had authorised him to guarantee that the necessary accommodation would be provided in that city, in case of the exhibition being held there next year.

The motion that the exhibition of 1861 should be held at London was then put from the chair and carried.

It was then moved and *Resolved*,—That the thanks of this Association be given to the Local Committee, the Mayor and Corporation of the City of Hamilton, the President and Vice-Presidents of the Association, and the Judges of the various classes for their valuable contributions and services in aid of the exhibition.

Resolved,—That the thanks of this Association be given to the Canada Company for their continued liberality in offering every year handsome special prizes for the encouragement of the growth of wheat, hemp, and flax.

The meeting then adjourned.

ANNUAL ADDRESS.

Delivered by the President of the Association, John Wade, Esq., at Hamilton, Sept. 21, 1860.

Gentlemen,—Ever since the establishment of the Agricultural Association of Upper Canada, it has been customary for the person who holds for the year the honorable and distinguished position of President of this noble and highly useful Institution, to deliver an Address. It is with much hesitation and diffidence that I approach the subject, and feebly attempt to discharge the important duty devolving on me.

At this the Fifteenth Annual Exhibition, I am sure that every one of you will agree with me that this great annual gathering of the farmers, manufacturers, and artizans of our country, was never held under more cheering and favorable circumstances. Favorable, because of the onward progress it has made during the past years of its existence; for, when it was first commenced, it was with much doubt and uncertainty on the part of those patriotic and energetic individuals, who first suggested and brought it forward; and during the first few years of its existence it was quite problematical whether it would succeed. But owing to the untiring exertions, and the indomitable perseverance of its first promoters, (who are most of them prominent office-bearers at the present time,) it has succeeded beyond the most sanguine expectations of its warmest supporters, and instead of being, as it was considered by many at the time of its formation, in the light of an untried speculation, and at best of very doubtful advantage, it has now become one of the necessities of the age.

And on this occasion it is held under the most auspicious circumstances; many things are happily combined to render it the greatest and most successful exhibition that has ever taken place in the Province. Being held in the centre of the finest agricultural and the most fertile and flourishing part of Upper Canada; accessible both by land and water, and surrounded by scenery unrivalled in the world, in the midst of which stands this beautiful and prosperous city, whose inhabitants have united heart and soul to make this exhibition the most attractive and successful of any that have preceded it.

It is also held under the most cheering and favorable circumstances, because the Almighty Giver of all good, has, in His great mercy, blessed us with another abundant and fruitful season; and at a time too, when our surplus products will be needed to supply the deficiencies in the Mother country; from which we hear daily, as well as from other parts of Europe, deplorable accounts of the weather, and extreme backwardness of the season.

But above all, gentlemen, this Exhibition is being held under most auspicious circumstances, arising from the distinguished visitors who have been pleased to honor it with their presence. We were not only favored with a visit from His Royal Highness the Prince of Wales, and the distinguished statesmen, noblemen and gentlemen, civil and military, who form his suite; but also with many distingnished gentlemen from the United States; altogether forming a happy combination of circumstances, calculated to make this Exhibition the most interesting and brilliant that has ever been held in this Province, and which will ever be remembered and recorded as one of the brightest and most memorable events in the annals of its history.

The only thing to be regretted on the present occasion is, that the high and honorable privilege of addressing you, has not fallen into abler and more competent hands. However, to make my address as little tedious as possible, I will make it short and concise, confining myself to a few remarks of the practical kind, which, indeed, are the only things I consider myself competent to undertake on this occasion.

The theme (if I may be allowed the expression) to which I shall briefly call your attention, is what is generally called "high farming." The term, I believe, is so well understood as to call for no illustration; the principle is, that what is worth doing at all is worth doing well—not only from the much greater satisfaction in doing it, but also from the fruits; and to apply this general and well-established rule to the subject before us, it is quite certain that there is neither profit nor satisfaction in low farming. If it is possible by high farming to make one acre of ground produce what is ordinarily produced on two, it is not only much more profitable, bnt also much more satisfactory to the farmer. You are, however, well aware, gentlemen, that it is much easier to preach than to practice, and to attain to that perfection of husbandry in our new country that obtains in the old is very difficult. But in order to do anything well, we must raise our standard high—no matter how high; for if we cannot reach the top, we must get as high as we can; and if we labor under some difficulties in our new country, that they do not in the old, we have many advantages in other ways; one is, we have their example to copy from; and what is very encouraging, we are nearly all our own landlords, which, without meaning any disparagement to the old country institutions of Landlord and Tenant, is much more satisfactory to the farmer, and very encouraging to him in his attempts at improvement. The only drawback to this

is that it may have the effect of keeping the standard lower than it ought to be, in consequence of the desire to accumulate more acres, rather than cultivate better what we have already. The high price of labor is another drawback; these things combined render it difficult to attain to a very high standard for some time to come.

But to give a practical bearing to these general remarks; there are several requisites wanting, such as skill, knowledge, and adaptation to circumstances. In the first place the farmer must study the nature of the soil he cultivates; what kind of crops it is calculated to produce to the greatest advantage to him, not only in immediate profit but also to keep up and maintain its fertility; for what might prove an excellent system of management on one farm, might prove quite unsuccessful on another. For instance some soils are already drained by Nature, such as the gravelly soils on the Grand River in the neighborhood of Brantford and Paris; such soils in order to make them fruitful, and bear heavy crops, require fertilizing substances to be added to them, while the clay flats on the north shore of Lake Ontario, require draining, before any thing like a satisfactory state of husbandry can be attained. Also we find one kind of soil adapted to one kind of crop, which on another, it would be useless to attempt growing. Those clay soils which cost so much in draining and mixing and comminuting the soil, do not require so much manure, as they naturally possess much of the elements of fertility in themselves; while the gravels that are easily cleared to begin with, require no draining, are easily plowed, and generally easily managed, will be soon exhausted, if not constantly manured. Showing that things in this world, are more evenly balanced than is commonly supposed.

In order to attain to any high standard of farming, it is not only necessary to study the nature of your soil, but the variations which takes place in seasons. But whatever the season may be, the highly cultivated farm succeeds the best. If the season is wet, the well drained farm will not suffer, and if the season be dry, it is the same, for the roots of plants can penetrate deeper on drained land. Deep ploughing, connected with thorough draining, is also essential, as well as a thorough mixing of the upper soil or vegetable deposit with the upper surface of the sub-soil. An exterminating war against weeds must be constantly kept up, and the motto of "No Surrender" to them is absolutely necessary.

It would only be waste of time to go further into details about minor matters that every farmer must be already well acquainted with; but if thorough cultivation of soil is absolute, it is also necessary to keep the very best varieties of stock in all its branches; the best variety of horse for team work, of which (of the many well tried breeds) the farmer must be his own judge; the best kinds of horned cattle, of which also the farmer must judge for himself as to the adaptation of the various improved breeds to his own peculiar farm, and so down through all the list of the domestic animals. The best and most improved kinds of agricultural machinery and implements, large and small, are equally requisite; and I am happy to state that those things are easily obtained. The improvements in every class of these things within the last few years is perfectly astonishing—far beyond the most sanguine expectations of all who a few years ago took the most interest in such matters, and great credit is due to those enterprising artizans and manufacturers who have brought our agricultural machinery and implements to their present very high standard.

Having now drawn a few of the outlines of what is necessary to profitable farming, and having started by stating that high farming was the only system that could be profitable, I will draw this part of my address to a close by alluding to one or two matters which for the last few years have been the cause of much uneasiness and alarm to the country. Since the visitation of the wheat midge the wheat crop has suffered to such a ruinous extent year after year as to make it supposed that its cultivation would have to be abandoned until the "destructive little pest" passed away, or was starved out; and I believe that on many parts of this continent wheat growing has been discontinued for several years past. However, so far as the history of this most destructive insect is known, it has been found to pass away after a period of six or seven years. It is about that time since it first visited the part of country where I reside, and its ravages have now in a great measure ceased; not because we have ceased to grow wheat, but from observation and experience we have partly found out its habits. It is now almost universally believed that its mischievous and ruinous attacks, are confined to a limited

time—say from 8 to 10 days; and that period, so far as my observation has extended, has not varied more than from two to three days between one season and another, since the first appearance of this pestilent ravager of the wheat crop; so that by having the wheat to shoot out before or after the midge season, is the system that has been adopted, and has in a great measure been eminently successful. Consequently, *early* varieties of fall wheat are in great demand; and varieties of spring wheat, which are not liable to rust, can be sown so *late* as to escape unharmed by the attacks of the insect. I might mention, *en passant*, that what is called Fife wheat has answered that purpose hitherto much better than any other variety yet known or discovered. It is hardly necessary now to mention its history, that being already pretty well known; but this peculiarity of being rust proof, which no other variety that I have ever yet seen is, is really very extraordinary and unaccountable. The only way I attempt to account for it to my own mind, is from the great stamina it possesses in itself as a plant, not only in its straw, which possesses more *silica* in its composition than any other variety. (This substance it is well known stiffens the straw, and completely glazes the surface of the stalk so as to prevent the seeds of the rust or mildew vegetating on it.) I go on the now almost universally acknowledged principle that rust itself is a vegetable of the *fungus* tribe, propagating itself by its own seed; and that in order for its seeds to vegetate, other circumstances must be favorable, and because the wheat in question has this blaze or varnish on its surface to so large a degree, it is rendered thereby impervious to the vegetation of this fungus, should the seed be sown upon it, and a very apt comparison may be drawn between this kind of straw and most others by contrasting a hard graveled road with a fallow field; the Fife with its glazed stalks forms the hard road, and the soft strawed wheats the fallow field. The conclusion is easily arrived at. But this wheat not only possesses this property in its stalk or straw, but is also richer in its nutritive qualities than other kinds by holding a greater proportion of gluten in its composition, with starch and sugar, which form the component part of wheat or flour. It has also great hardihood in the early stages of its growth, enduring more wet weather without sustaining damage than any other spring grain. The high standard of farming which obtains in Great Britain cannot so easily be arrived at with us in Canada, on account of one sort of labor, such as is done there by women and children, who are chiefly employed in weeding, hoeing, hay-making, and other light work of the farm. But to partly compensate for those advantages possessed by the mother country, we have a drier climate, rendering the killing of weeds less troublesome, and hay-making a much shorter process; and the great improvements that have been made, within the past few years, in the construction of our agricultural implements and machines, have been of great service to our farmers, and almost counter-balance the difference between us and the agriculturist at home.

Having mentioned along the way a few of the difficulties that beset the path of the person who attempts to carry out the principles of high farming, I would still urge him to keep his standard high, and by diligent perseverance the end will be obtained; and under the benign rule of our gracious Queen, and under her liberal government, the farmer of Canada has nothing to fear. Our educational institutions are second to none in the world—where our youth can have all the advantages, at a cheaper rate, obtained from such institutions, than anywhere else; and if, in past years, mismanagement in the financial affairs of our country have taken place, we must try to do better in future. Our country is young, and full of elasticity. Our lands are fertile; and by following the steps of other nations who have arrived at success, with the blessing of Divine Providence upon our efforts, we have before us a brilliant future.

MEETING OF THE BOARD.

Friday, Sept. 21, 1860.

The Board resumed at 3 p.m.

Present—Messrs. Thomson, Alexander, Beatty, Ruttan, Denison, Pell, Burnham, Christie, W. Ferguson, Wade.

Several Appeals against the decisions of the Judges were received and referred to Committees.

The Secretary submitted some Accounts sent in for printing and advertising, for which no order had been given by the Board.

Resolved—That in consequence of bills

being presented for printing which was not ordered by this Board, for the future no bills shall be paid unless the work for which they are rendered shall have been ordered by the Secretary.

After disposing of numerous matters of detail, connected with the business of the exhibition, the Board then adjourned till further notice.

THE EXHIBITION

AT HAMILTON, SEPTEMBER 18 TO 21, 1860.

(Reported by Mr. William O'Brien.)

The Exhibition of the Agricultural Association of Upper Canada which has just been brought to a close, will long be regarded as a most brilliant epoch in the records of the Society. Closely connected with the visit of the illustrious personage who made it the scene of his last public appearance in this part of the dominions of his Royal mother, it possesses an historical interest which time will not readily efface, while as a memorial of the progress which we have made in those branches of industry most essential to our prosperity, it far outshone all that have preceded it. So complete, indeed, and so splendid an exposition of the resources of the country could hardly have been anticipated, and there is therefore especial reason to rejoice that the exhibition was held at such a time as to enable the future head of the empire, and the ministers who accompanied him, such a fair opportunity of judging for themselves of the nature and variety of our productions. To say, indeed, that the exhibition for the present year excelled all previous ones would be but to use a remark which, we are happy to say, has been applicable in turn to each that has yet been held; it is within the truth to assert that at no time in the history of the Association has so decided an advance over former years been shown in our agricultural progress, or so general an effort put forth to display to the best advantage the position to which, in this respect, the country has attained. On former occasions the progress made has generally been visible in one or two points only; the remarkable feature this year was that it was equally manifest in all essential particulars, and that nowhere was there any deficiency to mar the general appearance of the whole.

The Exhibition ground, which, we may remark, is in all respects the best, and the most picturesque that has yet been selected—the buildings erected upon it, which are both handsome and commodious—the various incidents connected with the two visits which the Prince of Wales paid to the exhibition—all these have already been so fully described through the Press, that it is needless for us to revert to them in detail. To the public at large the double attraction of the show and of the Prince was irresistible, and such a concourse of people was gathered together as probably never assembled at any one time in Canada before, greatly to the benefit of the funds of the society, which were never before so largely enriched by the sale of tickets of admission.

On Tuesday, the 18th September, the exhibition was opened for the judges, many of whom had concluded their labors by the evening. On Wednesday, as usual, members only were admitted, and as it was understood that the Prince would visit the ground during the day, the sale of members' tickets was unprecedentedly large. About two o'clock the Prince arrived, but such a crowd immediately gathered about him that it was impossible for him to form any idea of the nature of the show, and he was obliged to retire without having seen anything but the masses of people who everywhere surrounded him, much to the disappointment of the officers of the Association. On Thursday the public were admitted, and the inauguration of the building by the Prince was performed. On this occasion His Royal Highness was more fortunate, for every one having gone outside to witness his approach, the doors were immediately closed, and the building was kept clear until the illustrious visitor had time to inspect all the articles upon exhibition, without crowding or inconvenience. With the show of fruit in particular, the Prince expressed himself highly delighted, and certainly, in this respect, as well as in many others, there was everything to create astonishment in the minds of those who are accustomed to regard this country as but yet on the threshold of civilization. The opening ceremonies then took place, during which His Royal Highness received the address of the Association, which, with his reply, will be found elsewhere, and was presented by the Secretary with a copy of its

Transactions, magnificently bound. This over, the Prince walked and drove round the ground, and subsequently the Duke of Newcastle, accompanied by some of the officers of the Society, minutely examined the cattle and sheep, going into several of the stalls, and looking about him with an eye evidently capable of forming a correct opinion on the subject. With the show of grain, His Grace appeared to be particularly struck, and requested that a lot of samples might be made up for him as specimens of our staple production. The reception of the Prince was, throughout, of the most enthusiastic nature.

On Friday, the meeting of Delegates took place, at which H. C. Barwick, Esq., of Woodstock, was elected President of the Association for the ensuing year, and F. W. Stone, Esq., of Guelph, and Asa Burnham, Esq., of Cobourg, Vice-Presidents. It was then resolved, after a short discussion, that the next Exhibition should be held at London. It is only right to mention here, that during the exhibition every attention was paid to their visitors by the people of Hamilton, and that all their arrangements, and especially those of the Local Committee, were upon the most liberal scale, and fully answered the pledges which they gave when Hamilton was fixed upon as the place for holding the exhibition.

With this brief *resumè* of the principal events connected with the exhibition we shall now proceed to report in detail upon the principal features of the show, and especially those of interest to our agricultural readers.

PRODUCE OF THE FIELD AND THE GARDEN.

And of first importance, though not so generally regarded as they ought to be, we shall commence with

ROOTS—(FIELD GROWN.)

That there is nothing so essential to good farming as the cultivation of roots, and that they are equally necessary for the profitable raising of live stock and grain crops, is a truth which even the most obdurate among our farmers are at last compelled to admit. A most useful auxiliary in teaching this all-important lesson was the much-dreaded last winter with its universal scarcity of fodder, which also taught how much of the latter may be saved by its being properly prepared. But valuable as the straw cutter is as a means of saving dry food, without the turnip our stock would fare but badly, whereas by the conjunction of the two, not only do they thrive better than on hay, at far less expense, but a larger amount of ground is rendered available for grain crops, and as more cattle can be stall fed, more manure is obtained, and the average yield of grain to the acre vastly increased. With these facts before us, of the truth of which every year's experience affords additional proof, it is gratifying to find, at our Provincial Exhibitions, a steady growth in the quantity and quality of articles of this description. So great indeed was the number of samples exhibited at Hamilton, that the portion of space allotted to them in the main building was soon found to be insufficient. A large tent was accordingly prepared for their reception, in which they made a magnificent display, especially when it is considered that the time of the show was unusually early, and that they had fully a month to grow before arriving at perfection. Inside the tent we noticed from five and twenty to thirty specimens of Swedes, some indeed rather overgrown, but generally not only of large size, but of good proportions, well-shaped and clean-skinned. Of all that were exhibited, there was not one lot, that for the time of year, would not have been a credit to any farmer in the world. One parcel contained four roots, which were said to weigh collectively 75 lbs. In point of shape, and clean growth, these monsters were not, however, equal to many other samples exhibited. Of white turnips there were also some very fine specimens, though not so many as of Swedes. Of mangel wurzel, both of the long red and yellow globe varieties, there was a splendid show, both in quantity and quality, there being altogether some forty lots exhibited. We are glad to see this valuable root so much upon the increase, and none of our farmers who saw the specimens exhibited at Hamilton could fail to be convinced of its productiveness as a field crop.

Besides turnips and mangels, there was a large show of field carrots and parsnips, all exceedingly creditable, a fine lot of Kohl Rabi, some splendid samples of sugar beet, some very fine field cabbages, and last, though not least, three monster squashes, the largest we have ever seen.

Of potatoes there was an almost endless variety, including all the kinds best known,

in greater or less purity, with several others of mixed families, whose paternity was not always distinguishable. All the specimens shown had a fine healthy appearance, and we saw no symptoms of anything approaching to the rot. The skins indeed were remarkably clean, and judging by the size and quality of the specimens shown, we should conclude that the potato crop is a large one.

The show of roots generally was far in advance of any that we have seen on any previous occasion, and though the past season has, no doubt, been unusually favorable for this species of crop, it is equally certain that a very great advance in their cultivation, and therefore a great step in agricultural progress, has latterly been made.

GRAIN.

Returning to the main building, from which these roots had been removed, we found upon the right-hand side of the northern entrance the finest collection of grain that has ever been seen in Canada, and perhaps in America. For the Canada Company's prize for the best 25 bushels of Fall wheat, there were no less than thirty-two entries; the number of entries for wheat altogether being two hundred, brought from all parts of the Province; although judging from the localities mentioned in the prize list as the abodes of the successful competitors, the premiums appear to have been chiefly awarded to samples grown upon light soils, which generally produce the finest grain, though not the heaviest crops. Those who examined the grain may easily form an idea of the difficulty which the judges must have experienced in making their award. Out of the whole two hundred lots, or thereabouts, only one weighed less than 63 lbs. to the bushel, and of all this enormous quantity there were but one or two samples which could be set aside at the first examination as undeserving of further notice. At most exhibitions of grain, a large proportion is generally at once disposed of by the judges in this way, but in this case it was different, and it was only by the most careful weighing of the whole that anything like a correct decision could be arrived at, and even then there was such an equality in the best specimens, that it was no easy matter to make an impartial choice. Of the samples fixed upon as the best, a great many reached the weight of 66½ lbs., and if weighed in the ordinary way, the standard would have been even higher. It was not alone, however, the fine quality of the grain, and the very high average of its weight which were its only recommendations; its purity from other seeds was equally remarkable, thus showing the care taken in its preparation, and the good quality of the implements used, as well as the nature of the soil upon which it was grown, and the good system of husbandry pursued in its cultivation.

The other cereals, such as peas, oats, and barley, were also well represented, and in general the remarks which we have made with reference to the wheat are equally applicable to them. The display of Indian corn was also unusually large and excellent. The show of grain as a whole spoke volumes for the quality of the harvest just gathered, and affords a bright prospect of returning prosperity.

GARDEN VEGETABLES.

Opposite to the grain was placed a very fine collection of garden vegetables, which might have been studied to advantage by our farmers, who, in general, pay far too little attention to the products of their gardens. The potatoes shown in this class exceeded in number and variety of sorts those displayed in the tent outside, and all appeared to be excellent of their kind. Of other vegetables there was a large assortment. The onions were particularly fine. Cauliflowers also were extremely good; and the same may be said of the carrots, parsnips, beets, &c., all of which were well represented. Among other things we noticed two choice assortments of capsicums, &c., one of which, in particular, was most tastefully arranged. This part of the exhibition was by no means behind any other, as displaying the position which the country holds in the cultivation of those lesser agricultural productions, the value of which, in an economical point of view, can scarcely be overestimated.

FRUITS AND FLOWERS.

We now come to what was unquestionably the crowning glory of the whole exhibition—a show of fruit such as could be nowhere excelled out of a tropical region, and which, in a country like this, affords the surest test of its growth in wealth and civilization. Few are so ignorant of this country as not to know that wheat and timber are its staple productions, but few even amongst its own inhabitants could have expected to see such

a magnificent display of the finest and richest fruits which this climate can produce, as was to be found in the centre of the exhibition building at Hamilton. It was not that a few isolated specimens were there to show what might be done with great care and lavish expenditure, but the choicest fruits were displayed in such rich profusion as to prove the extent to which they are cultivated in different parts of the Province. Finer specimens of hot-house grapes could scarcely be seen, and of those grown in the open air, the varieties were both numerous and excellent. Rich looking peaches of enormous size, and with the most delicate skins, luscious plums, almost as large as ordinary peaches, and most inviting in their appearance, were there in abundance, and in every variety which the ingenuity of fruit-growers has devised. Pears, too, of the finest quality, were not wanting, and of apples, the staple fruit of this country, the number of varieties was legion, yard upon yard of table was covered by them, and so much did they exceed upon the space allotted to them, that several baskets remained unpacked from want of room whereon to display them. In fact, the whole of that portion of the building devoted to agricultural and horticultural productions was desperately crowded, and the ingenuity and patience of the parties in charge of these departments were sorely tried before they succeeded in arranging them in a satisfactory manner. But to return to the fruit; it formed unquestionably a show of which every Canadian might well feel proud, and which we need not have been ashamed to lay before our Prince, as an offering of what the land can produce. And we cannot but think that His Royal Highness, on making his tour of the building, must have felt proud of a country which could gather under one roof a display, not merely of the materials of wealth in its corn and other products of the field, such as could not be surpassed in the world, but also of positive luxury in the shape of fruits and flowers, of those choice varieties which require not merely a genial soil and climate, but the existence of a degree of acquired wealth and cultivated taste not to be found in many older countries.

Respecting the show of flowers, we have not room to particularize, but that it was in all respects a highly creditable one, and especially so to the gardeners of Hamilton and its vicinity, was universally admitted. The members of the Toronto Horticultural Society also fully sustained their reputation both in fruits and flowers, as well as in vegetables, in all of which they carried off many of the prizes.

LIVE STOCK.

Having thus disposed of those articles, the cultivation of which forms the foundation of good husbandry, and the great staples of our wealth, we will now return to the exterior of the building, and take up in their order what to the general observer is of more interest than turnips or mangels—the live stock—the possession of which, in its highest excellence, is the chief object of ambition in the mind of every farmer. In this respect, as well as those already enumerated, the show at Hamilton exceeded all its predecessors, not so much in the number or value of new importations, as in the proofs which it afforded that the good stock is not now, so much as formerly, altogether in the hands of a few breeders, but that the exertions and enterprise of the latter have borne fruit in a general diffusion of well bred animals, not only to the benefit of the country at large, but also, it is to be hoped, to that of those to whose spirited exertions we are all so largely indebted.

HORSES.

To whatever reason it is to be attributed, we have always possessed in this country a breed of horses admirably suited for our work, and therefore the improvement in these animals is not perhaps so perceptible as in many other animals. But as the country changed from a half-cleared wilderness to a highly cultivated region, as good roads took the place of bad ones, and as the latter were in turn supplanted by railways, and also as a more thorough system of cultivation was introduced, a different description of animal was required. Thus of late years the small active horse of all work, who could plough lightly his acre and-a-half per day, and trot home from market over the worst of roads, or, in sleighing time, easily make his seven miles an hour for a long journey, has given way to a heavier and more powerful animal who trots less, but can plough more deeply the stumpless field, and draw on the macadamized road, or for the short distance to the railway station, a heavier load than his more active predecessor. Thus we have now at our shows as an agricultural or general purposes stallion, a much heavier animal

than in former days. Although we have discarded the pure Clyde as too big and clumsy, we are constantly importing fine Clydesdale, or Cumberland, or Yorkshire horses very little inferior in bone and weight of carcase, and by breeding from them, we have very much increased the size and weight of our farming stock, and of this style of horse there were at Hamilton many fine specimens. Still, however, since even in these days of triumphant materialism, blood cannot be altogether superseded by bone, the thorough-bred horse maintains his supremacy, and we were therefore glad to find at the show this year a larger number of thorough-breds than usual. Foremost among them, and indeed the animal most deserving attention among horses of all classes, was "Antonio," a thorough-bred stallion just imported by Dr. Morton, of Bradford, in the County of Simcoe, well-known as thoroughly versed in horse flesh, and devoted to all that tends to their improvement. The advent of a new blood horse of really fine quality, is an event of sufficient importance to be worthy of special attention, and we therefore gladly avail ourselves of this opportunity of giving some particulars of the valuable animal whose services Dr. Morton has brought within reach. From "Antonio's" pedigree, we learn that he was full brother to "Andover," who was winner of the Derby in 1854, and who is now in the stud of the Emperor of Russia; he was got by "Bay Middleton" out of "Sister to Agis," by "Defence;" g. d. "Soldier's Joy," by the "Colonel." "Antonio" was bred by Mr. W. Etwale, and purchased from him by Sir Robert Peel, by whom he was sold to Dr. Morton. "Antonio" was foaled in 1856, and as a three-year old he ran at Ascot, Newmarket, and Goodwood, winning stakes and matches to the amount of $10,000. He is a dark bay, with black points, without a single white hair, stands 16 hands, with plenty of bone and muscular power, and when in flesh will make a very showy animal. When shown at Hamilton he was low in condition, having been in training when purchased, and suffering also from the effects of the voyage. Of the other horses shown in this class there were none worthy of especial mention. "Antonio" took the first prize for this year, which as he was newly imported, was trebled, and also the gold medal as the best blood horse of any age.

The show of agricultural horses, roadsters, and heavy draught horses, was very good, both as regards the number of those shown and their generally good qualities. We are not aware, however, of any fresh importations in these classes, or of anything calling for especial mention; the published prize list gives the names of all who were deemed by the judges to be deserving of premiums.

DURHAM CATTLE.

Before entering upon a description of the cattle we should observe that the accommodations provided for them were better and more extensive than upon any previous occasion. At Kingston, it is true, that the principal cattle shed was for its size better arranged than any at Hamilton, but it would not have held the animals that were there exhibited. The shed at Kingston was, it will be remembered, a double one, having a raised and boarded passage between the two rows of stalls; a most convenient arrangement for the inspection of the cattle. At Hamilton the stalls were erected all along the walls of the enclosure, and though there were no covered ways for visitors, still they were roomy and convenient for the cattle.

The show of Durhams, though unquestionably very fine, did not display the marked features of improvement visible in some other departments of the exhibition; no fresh importations having taken place, and some of the best herds being not so numerously represented as on former occasions. And what was remarked upon as a singular circumstance, and was certainly felt as anything but encouraging by those who have gone to so much trouble and expense in procuring new stock, was, that in several instances the prizes were awarded to animals that have been long in the country, and which, whatever their other good qualities may have been, were generally regarded as deficient in those finer points which it is the aim of every breeder to attain. This was especially the case with regard to aged cows, and the conclusion is inevitable, that if the decision of the judges in these cases was correct, as very possibly it was, then the labors of our importers for some years past have been in vain.

The observation which we have previously made, that at this year's exhibition the prizes have been more generally distributed than formerly, is especially the case with regard to Durham Cattle, for, as will be seen by the list, a number of new names appear among

those of the successful competitors who have not hitherto attained any celebrity as breeders. This is certainly encouraging to young beginners, as proving that without going to the enormous expense incurred by our principal breeders, it is possible to produce some animals worthy of a place at our Provincial Exhibitions. But without doing any injustice to other exhibiters, we may state that the herds of those well known breeders, F. W. Stone, of Guelph, and Geo. Miller, of Markham, are yet unsurpassed in the country. The former received the prize for the best herd, although to none of the animals composing it were first premiums awarded, and the latter for his two-year-old bull, "Prince of Wales," a very fine young animal, imported in 1859, received the gold medal for the best Durham bull of any age. The prize for the best bull of any breed was awarded to Mr. W. Armstrong, of Markham, for his imported three year old "Young Tweedside."

Besides the thorough-bred shorthorns, there were some very fine grades exhibited, pre-eminent among which were two cows shown by Mr. Hodgskin, of Guelph, but which are apparently so very nearly thorough-bred that they might have shown in either class. They certainly were not surpassed in size or fineness of quality by the cows which obtained the first prizes as thorough-bred animals.

DEVONS.

The show of Devon cattle was unusually large, and several new competitors appeared in the field. The large herd of W. H. Locke, of Yarmouth, presented, as usual, a very attractive appearance, and as this breeder never houses his cattle on the ground, but makes a point of keeping them altogether in some conspicuous place, they always show to the best possible advantage. Messrs. Ferrie, of Doon, had also a very fine display, and took a number of prizes. Mr. Tye, of Wilmot, was also a large exhibiter, but his cattle, though well bred, are smaller, and not so well kept, as those of some of the other breeders, and do not compete so successfully as they ought to do. Mr. Courtice, of Darlington, was, on this occasion, very successful as a competitor for prizes, and the Messrs. Rykerts, of St. Catharines, appeared for the first time with a number of cattle which promise well for the future, their young stock being better than that from which they have been breeding. The only new importations that we observed were two calves, a bull, and a heifer, the property of J. Spencer, of Whitby. The prize for the best bull of any age was awarded to J. Davis, of Clarke, and that for the best herd to W. H. Locke.

HEREFORDS.

We are sorry to see that this very valuable herd is becoming almost extinct in the country. The only animals exhibited were those of Captain Skene, of Amherst Island, and J. R. McMicken, of Stamford, who divided the premiums between them. None of their cattle were entitled to any special commendation. We speak from experience when we say, that no single cross upon the common cattle of the country produces more immediate and desirable effects than that of the Hereford, especially as regards feeding qualities.

AYRSHIRES.

If we may judge by the number of animals of this breed that were exhibited, it is certainly growing in favor with Canadian farmers. In the prize list, among the names of the successful competitors, will be found those of several who are new to fame, and whose appearance on this occasion proves that the breed is rapidly spreading in various sections of the country. The principal exhibiter was P. R. Wright, of Cobourg, who showed eleven fine head, for which he received no less than twelve prizes, including that for the herd, six of them being first prizes. Mr. R. L. Denison, Treasurer of the Association, is also an extensive breeder of Ayrshires, and he had on the ground a number of fine specimens. Owing, however, to the fact, as we were informed, that some question was raised as to the purity of his stock, for which there is not the least foundation whatever, justice was scarcely done to his really handsome bulls. His heifers were certainly scarcely in condition for show. J. Nimmo, of Camden; Jardine, of Saltfleet; Dixon, of Binbrook; and George Morton, of Morton, whose stock was purchased we believe from the herd of Mr. James Logan, of Montreal, were also successful competitors in this class.

[To be continued in our next.]

Cleanliness.—Compare the dirtiness of the water in which you have washed when it is cold without soap, cold with soap, hot with soap.—You will find the first has hardly removed any dirt at all, the second a little more, and the third a great deal more. But hold your hand over a cup of hot water for a minute or two, and then, by merely rubbing with your finger, you will bring off flakes of dirt or dirty skin. After a vapor bath, you may peel your whole self clean in this way. What I mean is, that by simply washing or sponging with water you do not really clean your skin.

Take a rough towel, dip one corner in very hot water—if a little spirit be added it will be more effectual—and then rub as though you were rubbing the towel into your skin with your fingers. The black flakes which will come off will convince you that you were not clean before, however much soap you may have used. These flakes are what require moving. And you can really keep yourself cleaner with a tumblerful of hot water than a whole apparatus of bath, and soap and sponge, without rubbing. It is quite nonsense to say that anybody need be dirty. Patients have been kept as clean by these means on a long voyage, and where a basinful of water could not be afforded, and where they could not be moved out of their berths, as if all appurtenances of home had been at hand.

Washing, however, with a large quantity of water has quite other effects than those of mere cleanliness. The skin absorbs the water, and becomes softer and more perspiral. To wash with soap and soft water is, therefore, desirable from other points of view than that of cleanliness.—*Notes on Nursing, by Florence Nightingale.*

Swiftness of Birds.—A German ornithologist says the vulture can fly at the rate of 150 miles an hour. Observations made on the coast of Labrador convince Maj. Cartwright that the wild goose can travel at the rate of 90 miles an hour. The common crow can fly 25 miles; swallows, according to Spallagin, 92 miles an hour. It is said that a falcon was discovered at Malta 24 hours after the departure of Henry IV. from Fontainbleau. If true, this bird must have flown 15 hours at the rate of 57 miles, not allowing him to rest a moment during the whole time.

Analysis of the Atmosphere.—An instrument has been invented by M. Pouchet, the French microscopist for concentrating upon an infinitely minute surface all the solid and normally invisible corpuscles floating in the atmosphere, so as to allow of their examination by means of the microscope. He succeeds in concentrating upon a glass, and within the space of two square millimetres, all the particles disseminated in a cubic metre of atmosphere. The new instrument will be valuable in facilitating microscopic analyses of the air in hospitals and other localities, where, for hygienic purposes, a knowledge of the purity or impurity of the atmosphere is deemed desirable.

Editorial Notices.

Blackwood's Edinburgh Magazine for October.—New York: Leonard Scott & Co.; Toronto: H. Rowsell. Leonard Scott's reprint of this number of Blackwood has come to hand somewhat earlier in the month than usual. The number is an attractive one, although containing rather a larger proportion than usual of light and amusing matter; which however by the way will probably render it none the less agreeable to the majority of readers. The following are the titles of the articles:—

Seeing is Believing; The Papal Government; Tickler 2d among the Thieves; The reputed Traces of Primeval Man; The Romance of Agostini, Part II.; The Fresco Paintings of Italy—The Arundel Society; Proverbs; The Meeting; Progress; Strength; Norman Sinclair, An Autobiography, Part IX. Blackwood $3 a year. Blackwood and any one of the four Reviews $5. The four Reviews and Blackwood $10.

Ayrshire Cattle.—Patrick R. Wright, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale are liberal.

Full Pedigree of all animals—U. C. Stock Register.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed for the Board of Agriculture at 77 King Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten orders and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, NOVEMBER 1, 1860. No. 21.

Prepare for Winter.

November usually ushers in stern winter's sway; though in this part of Canada the cold is not unusually severe till the end of the month, and sometimes not till the middle of the next. It is most prudent, however, to aim at completing agricultural operations, such as ploughing, furrowing, &c., by the middle of this month, as frost frequently sets in suddenly, and takes farmers unprepared. The weather during the latter part of October was beautifully fine, with a warm temperature, and sufficient showers to consolidate the surface of cultivated land, and impart to the young wheat a vigorous growth. The present month commenced with a clear sky and balmy atmosphere, constituting in fact the most agreeable portion of the year; but such a state of weather cannot be safely calculated upon at this advanced stage of the year, and farmers should therefore strain every nerve to finish their work, and make every needful preparation for the feeding and shelter of their domesticated animals.

The hay crop in most sections of the Province was below an average, and it will require the best attention of the farmer to carry through the approaching winter his live stock in good, thriving condition. Happily there is an abundance of straw and pea-haulm; and the yield of potatoes, turnips, carrots, mangels, &c., has been generally large; so that if a careful and economical management be early adopted, there will be no reasonable ground for gloomy apprehensions. The importance of root culture is every year being better appreciated by Canadian farmers; as the turnip and carrot competitions in different parts of the country, some notices of which appear in the present number, satisfactorily show. The connection between the cultivation of grain and the raising of stock is beginning to be more practically understood; and no thriving, intelligent farmer would now dream of sustaining a good herd of cattle, without providing an ample supply of nutritious food, and bestowing upon them his best attention with regard to warmth, regularity of feeding, cleanliness, and ventilation. Let the stables and lodges intended for the housing of animals during the winter, be carefully examined, with a view of affording the completest shelter that is practicable. By such means their food will be greatly economised; for both science and practice show that animals well housed and cared for, consume less provender and thrive better than when subjected to an opposite condition, with a larger amount of food.

The finishing of getting up roots, cabbage, &c., should now be proceeded with without delay, as frost may any day come that would materially injure them, or wholly prevent the operation being performed at all. Such as have extensive and well ventilated root-houses will be able to store safely what roots they may raise for winter consumption; but even in the best constructed houses for this purpose, roots kept in large quantities will require occasional examinations, or they will most probably heat and run

into a state of fermentation. This is particularly the case with the Swedish turnips, which is often injured, and sometimes destroyed, by being too closely kept. Roots, like fruit, are the longest and best preserved in a uniform temperature, only a few degrees above the freezing point, in a dry situation, and in great measure beyond the influence of light, and artificial warmth. Turnips, mangels, cabbage, &c., intended for spring use had better be stored out of doors, in such places as are dry, and most convenient.

The best form, perhaps, of a store out of doors is that of the roof of a house, say ten or twelve feet wide, and about four feet high. It should be thickly thatched with straw, or covered with leaves, with as much earth outside as will keep out the frost. Mangels and potatoes will require during severe weather a thick covering of both, as the least access of frost to them will be sure to occasion decay. But Swedish turnips and cabbage, which are capable of enduring a greater degree of cold, without material injury, should be more lightly covered; and in constructing the store it will be well to leave apertures filled loosely with straw, to allow of the escape of vapour by evaporation, and by keeping the mass cooler, thereby prevent rotting, so commonly occasioned by fermentation. Much loss is commonly experienced from keeping roots too close and warm, particularly the Swedish turnip, which will do out of doors, except in the severest weather with a small amount of covering; and the same remark will apply to the cabbage and parsnip. In storing roots for keeping through winter, great care should be taken that they are not cut or bruised in pulling or cleaning. Mangels in particular should be carefully handled, leaving on a portion of the top, for when the crown is injured they will be sure to decay. Turnips also keep best when not tailed, and the tops cut off an inch or two from the crown.

A final examination should now be given to the wheat fields, and where any stagnant water is found, it should, if possible, be conducted away by deepening old furrows, or making new ones. Much relief may often be given to winter wheat by a little extra attention and pains in this way; and the advantages will be apparent during the season of growth, and particularly at harvest. The mouths of all underdrains should now be examined, and when needed, freed from all obstructions, that no impediments may exist to prevent their immediate operation when winter breaks up, and the rains of early spring set in.

Agricultural Education.

In another column we insert a communication on the subject of Agricultural Education, from a young man residing in the County of Simcoe, and ask for it the earnest consideration of our readers. The writer was brought up on a farm, but without any special instruction in the science of his pursuit. Being desirous of understanding something of the scientific basis on which all correct and improved practice must rest, he was induced to take the course laid down in his letters; and having succeeded in taking two scholarships in this department of the University, he may fairly be considered a competent judge of those matters which he recommends to others.

In order to obtain a scholarship or diploma in agriculture, it is necessary for the student to pursue that course of study, and undergo such examinations, as are prescribed by the University. The lectures in the College are so arranged as to meet these objects, comprising a first and second year's course. It may, perhaps, be desirable to state that young men may enter the College as "occasional students," in agriculture, without being subjected, should they so desire, to any examination either at the commencement or termination of the lectures. Such students have also the privilege of attending other classes; such as Chemistry, Geology, Natural History, &c., on the same conditions, by paying a small fee; and it would be impossible for any young man of ordinary ability and desire to excel, to attend one or two winters in this way, without being greatly benefitted and improved. A student matriculated in the University in Agriculture, has the privilege of attending the classes in the College without any charge for fees whatever, and is eligible to compete for prizes and scholarships; and we hope to see a larger number of youth from different parts of the country entering the lists of competitors for these honors. There is no reason why the sons of farmers should not avail themselves of literary and scientific advantages provided by the State, and specially adapted to their wants, equally with those of other classes. We published in this Journal, (vol. 10, pp. 170,

195,) an examination paper in Agriculture, containing the questions and answers at length, to which we refer such of our readers as may desire more definite information on the subjects and examinations in the agricultural department of University College.

Hops.

This crop in England is almost a total failure this season, and prices run consequently very high, from £15 to £25 sterling, per cwt., of 112 lbs. It appears that the crop on the continent of Europe is but indifferent, and that not any great quantity will be available for the English market from that quarter. A writer in the *Mark Lane Express*, of Oct. 1st, observes:—"It is in America where the crop is most abundant, and the probability is, the importations from that quarter will exceed the rest. But the question arises when they come, will they be generally used? We think not, so long as our yearlings keep about present prices; for the mischief caused by them in 1854 is not yet forgotten, and the samples now to hand of the new crop have the same objectionable flavor, and no doubt, if used, will lead to the same results. Opinions differ as to the cause—many thinking it indigenous to the land; others to the pine wood, (generating an acid destructive to fermentation,) with which they are cured; we are inclined to think it arises from the land: if from the mode of drying, that would have been remedied before now, so as to prevent complaints, as in 1854."

Hop culture in Canada for the last few years has, we believe, been somewhat dimlnished, owing to unremunerative prices, the destruction of the roots in some exposed situations, by the frost, and the difficulties and expense of gathering and curing. American hops, it is said in England, possess a rank and unpleasant flavor, giving to beer a disagreeable flavor. We were told in London a short time since, by a repectable factor in the Borough, that several brewers sustained great losses by using American hops in the last blighting year, 1857. Their beer exported to India, Australia, &c., possessed so strong a disagreeable flavor that it could only be disposed of at prices involving heavy losses. We are of opinion that the strong and peculiar flavor of hops grown on this side the Atlantic, arises more from the climate and varieties cultivated here, than from the mode of curing and the soil. This is a matter worth consideration by our hop growers, who should aim to produce an article adapted to the British market, since the import duty on hops sent to England has just been reduced from, we believe, some forty-five shillings to about fifteen shillings the cwt., of 112 lbs.

The Provincial Exhibition. The Prize List.

We give in this number the conclusion of the Report of the Provincial Exhibition, with a portion of the Prize List. The remainder of the List will be given in next number. We cannot of course pretend to compete in the *Agriculturist*, published only twice a month, with the daily newspaper press in giving early information of the prizes awarded. Besides, in the very extensive schedule of prizes offered and awarded, errors and omissions of more or less importance unavoidably occur, and, owing to the time required in communicating with parties after they have dispersed from the Exhibition, several weeks must elapse before such errors can be fully rectified, and therefore the official publication of the list is purposely delayed some time on that account. When the list does appear in the *Agriculturist* it has been thoroughly and carefully corrected, and as all the newspaper reports which have appeared, having been obtained before the returns of all the Committees were completed, were all necessarily very imperfect, this is of course the first full and correct list of the awards which has been published. Persons who have not yet received their premiums will obtain them by communicating, either personally, or by letter, giving their proper post office address, with the Secretary at Toronto.

Munificent Gift of the Prince of Wales to the Agricultural Association.

We have the pleasure of being able to announce, on the authority of a letter from the Secretary of His Excellency the Governor General, that amongst the liberal donations made by His Royal Highness the Prince of Wales, before leaving this country, to our various public institutions, is one to each of the

Agricultural Associations of Upper and Lower Canada. The information is conveyed in a letter from the Duke of Newcastle to Sir Edmund Head, from which the following is an abstract:

"The sum of £200 to be placed at the disposal of each the two Agricultural Associations of Upper and Lower Canada, to be applied by the Directors of those Societies in the distribution of prizes in such way as may appear after due consideration best calculated to promote the important objects for which the Associations were formed."

The Prince of Wales' prizes, in whatever way the sum may be appropriated by the Association, will doubtless be an object of high ambition at the Annual Provincial Exhibition.

Sheep in Ohio.

An Ohio correspondent of the *Boston Cultivator* states that a few years ago there were in that State five millions of sheep, but that the number has been reduced to three and a-half millions, chiefly in consequence of the destruction by dogs! "Many from this cause have abandoned sheep husbandry, although it is much better than raising cattle and farm horses." The same evil exists in Canada; many very valuable sheep, some of them imported at great expense, have, in different parts of the Province, been destroyed by dogs. And here, as in Ohio, some farmers have abandoned sheep, in consequence. Is there no *remedy?* Surely our Municipalities, or Legislature, might devise one!

Agricultural Exhibitions.—Autumn of 1860.

In the subjoined summary, condensed from the various sources of information at our command, we present our readers with a general view of what has been done by the farmers and mechanics of these Provinces and the adjoining States in the way of friendly rivalry amongst themselves during the recreation season of the present autumn. We give a hasty sketch of the leading features of the Provincial and State shows, and of the County and Township shows in our own Province, thereby enabling the reader to judge to some extent of the conditions of the developement of the agricultural and industrial resources of each locality. It is a noticeable feature at our own exhibitions, that the spirit of competition, and the ambition to obtain the award of superiority in the quality of animals or articles exhibited, has rapidly increased, and it has been generally noticed that the exhibitions this autumn have on the whole been better attended, and the stock and articles at them of a better character, than ever before. This has been no doubt to some extent attributable to the favorable season, but still the general remarks holds good, and the fact is gratifying, as affording encouraging and substantial evidence of the determination of our population to excel in the production of those articles which constitute the chief wealth of a nation. These exhibitions, especially the Provincial Shows, have been of incalculable service to this country, in the stimulus they have given to agricultural improvement, and the facilities to intercourse and the diffusion of intelligence amongst the farming population. In fact, as an old and experienced farmer, one of our most distinguished pure blooded stock breeders said to us the other day, "They have been the making of the country." Without them, many who are now amongst the most active and successful competitors at such shows, would not even have known what improvement in the breeds of cattle, in the various agricultural productions, or in the varieties of implements used, have been introduced, even if the improvements themselves had taken place, which may at least be doubted, but would have gone on in their old careless and unconscious course, producing nothing but of the most middling order of merit, to the end of their days. But, under the influence of such stimulus as these exhibitions have given, a rapid improvement has taken place, and we hope to see them duly maintained, of course under judicious management, and with an avoidance, so far as possible, of useless expenditure or waste of means, which have doubtless in some cases occurred.

PROVINCIAL AND STATE EXHIBITIONS, 1860:

MICHIGAN.—The fair for this State was held at Detroit, on Oct. 2nd to 5th. We gather the following details from the *Michigan Farmer:*

The fair in its general conduct was a decided success, yet by a comparison of the entries of previous years, there were some of its departments which were not as fully patronized as they deserve to be. The following comparative statement of the entries for 1859 and 1860, will show where the falling off was:

	1860.	1859.
Division A—Cattle	130	215
" B—Horses	264	342
" C—Sheep, Swine and Poultry	162	225
" D—Farm Implements	166	221
" E—Dairy and Household Products	87	94
" F—Domestic Manufactures	303	342
" G—Fine Arts, Needlework, &c	170	194
" H—Fruits, Flowers and Vegetables	340	555
" I—Grain, Flour and Seeds	54	84
" K—Miscellaneous articles	41	63
" L—Field crops and Draining	1	5
	1718	2340

Financially considered the fair has been very successful, although the receipts were not as large as those of last year. The exhibition of cattle throughout the whole of the classes, except in No. 11, was very limited, the number of Shorthorns competing was but 35, and certainly was no fair show of this class and the position it occupies throughout the State. Very many well known herds had no representatives whatever. [The leading prize takers in Durhams were the Messrs. Sly, and Mr. Crippen, of Coldwater, who, we understand, obtained their stock from the herd of Mr. Stone, of Guelph, C. W.] Taken as a whole the Shorthorns, though few in number, were superior in general character to any show of a larger number of animals of the same breed that has been ever seen in this State at any previous exhibition. The Devon herds of the State were but thinly represented. Mr. Allen's Coldwater herd, seems from the premium list, to have had altogether a clear field, with the exception of that grand old bull Prince Albert, which is still a remarkably fine specimen of the Devon stock, and well worthy of the first premium awarded to him. There were altogher 22 head of Devons, and of these fifteen belonging to the Messrs. Allen, of Coldwater, and fourteen of the fifteen took premiums, besides winning the prize offered for the best herd. The Herefords were represented by only two animals, shown by C. M. Beown of Lima. This breeder, however, showed some very fine half-blood steers of the Hereford stock, in which he took premiums in their class.

The Ayrshires came up somewhat stronger than usual.

In the grade and native cattle the exhibition was very meagre, and the competition consequently very light, while the show of milch cows amounted to nothing like what we should have at a State Fair in Michigan.

The number of horses entered the present year was not so great as at the previous fair, but the quality of the young stock has never been excelled. The exhibition, itself, the arrangements for the trials of horses, and the whole show were the best planned and best carried out, that has yet been seen in this State, and tended very much to render the proceedings of unusual interest in this department. There was a very large proportion of the all work class of horses, the entries being 68. There were also some useful horses, which had a good sprinkling of heavy English cart blood.

There were twent-four entries in the class of Morgans and Black Hawks. In this Othello stood at the head. This stallion is showing well. At the races on Monday previous to the fair, he took the purse of $150, winning three out of six heats that were trotted.

The class of thoroughbreds was much more full than we have ever seen it at these exhibitions. Col. Grayson was brought up by Mr. Fitch from Cleveland. He is looking magnificently, and there are few horses that will compare with him as a stock horse. In substance and style he is not to be beaten by any horse of his size, which is good.

Upper Canada.—We have given a full report of our own exhibition in other columns. We need only say here, that it was unquestionably in advance in almost all respects of all previous exhibitions of the Association, and was altogether a magnificent display of the Agricultural and industrial resources of the Province. We select the following paragraphs from a full and very friendly editorial report of our show in the *Country Gentleman* of Albany :—

Of the contents of the Crystal Palace I must speak cursorily, except as to the fruits and grains, which deserve particular mention; they included a general show of manufactured products, considerable machinery, musical instruments, quite a fine art collection, models of various kinds, artificial manures, &c., &c., all in sufficient number to convey to a stranger like myself, on his first visit to this part of Canada, a most favorable impression of its home resources and advancement in the useful and ornamental arts. On the western section of the ground floor, the display of garden vegetables as a whole, was certainly one of the *best* I have ever seen, if others may have surpassed it, in some particulars and perhaps also in mere extent. To the north were the dairy products, of which, both butter and cheese, the exhibition was very fair.

The Grain, however, as just intimated, and to which we are now coming, must be classed among the half-dozen prominent features of the Exhibition, in any and all of which I cannot but regard it as comparing most creditably with any Show I have ever seen. As to extent, an Idea may be obtained from the following summary of the principal entries :— * * *

But more striking than all this, were the *thirly-two* entries, each of *twenty-five bushels* Winter Wheat, competing for the Canada Company's prize of $100. This liberal premium was wisely supplemented by the Association with four others respective of $50, $40, $30 and $20, the winner of the first only being called upon to give up his wheat, but all required to furnish the Secretary with a written statement of the nature of the soil, mode of preparation, the variety and quantity of seed, and time of sowing, manures, (if any used,) produce per acre of grain, and any other particulars of practical importance, before being paid the amount of premium.

As to quality, it is difficult to imagine how it could have been much better; probably no premium was taken by any sample weighing less than 63 or 64 lbs. to the bushel, while I was told by one of the Judges that the weight of the first prize sample of two bushels was 66½ lbs., while that of the whole *twenty-five bushels* shown, in one or two instances, averaged throughout over *sity-five lbs. per bushel.*

The FRUITS which, with a less extensive assortment of Flowers, constituted the most ornamental and striking display in the Palace building, represented excellently well what I suppose to be the best Fruit region of Canada—that lying between the two lakes, Ontario and Erie, especially that part of it more immediately adjacent to the northern shore of the latter, while, indeed, it is probable that through a great part of the two counties of Lincoln and Haldimand, fruit may be cultivated to better advantage than in any other part of the province of equal extent.

But our time is limited and we shall see nothing of the Live Stock unless we abandon at once the charms of Pomona. I said there were half-a-dozen prominent features of excellence in the Show, and if the Grains and Fruits were entitled to rank among them, not less so is the display of Cattle throughout, and that of Sheep in the classes of Cotswolds and Leicesters. I say nothing of the Horses, for beyond one or two good specimens of the heavy English dray horse, I saw none of them; and, as to the Swine, it may be added in few words that the Show was a respectable one, without anything particular to attract attention unless it was some pens of Imported large breeds, which were almost constantly surrounded by an admiring crowd.

Among the Short-Horns, some were entitled to praise as really first class animals, and the range of merit throughout was above the average, while here in some degree, and still more among the Devons, not only does the contribution by so many different exhibiters to make up the show, speak well for the distribution of improved stock in the hands of the farmers of the country, but the excellence of the young animals bred from imported parents also proves that the breeders are working well for the interests of the herds they are rearing.

The Devons, as will be seen from the number of entries, were out in large force, and this, together with the excellence of many, gave the breed some prominence over others. The Galloways showed an evident gain in public opinion, and I cannot but renew the opinion I expressed in writing from Scotland, last year, that they are well worth more attention than we have ever given them. I should regard the display of them here as a very fair one—the aged stock showed good size in several instances, straight and tolerably even contour and good "quality," while among the young things there were one or two promising even better.

What can I add, with regard to the sheep, to what has been already said? Mr. Stone, who has just returned from England, has imported recently over 50 head of Cotswolds. He was exhibiting about 40 out of his flock, upon which he had altogether 14 prizes. He also showed a pen of South Downs, two imported and two of his own breeding, that were very nice. The entries of Leicesters alone were 176 in number, including among them many that I should be glad to notice at length, and the Cheviots formed a class seldom seen in our show-yards, but one of which I may repeat what was just said of the Galloways, that they deserve to be better known.

The show of Poultry was large, the coops admirably arranged as regards the comfortable examination of their contents, and the long range of roofing under which they were sheltered was constantly crowded.

Among the implements no visitor could fail to notice the number and variety of Cultivators that were exhibited, and connected with this fact may be mentioned a second, namely, that the show of Roots—although a gentleman assured me that they had had more and better on some other occasions—was certainly among the very best that I have ever seen, including particularly Long Red and Yellow Globe Mangolds, Sugar Beets, Swede Turnips, and Yellow Aberdeens. The show of Potatoes was also very large and admirable.

It is in this matter of sheep, roots, and implements of tillage, that we "Americans" might profitably study the example of those of our brethren in Canada West, who have brought into the practice of colonial cultivation some of the best ideas of the old country farming. My friend above alluded to had 40 acres of turnips and rape on his farm, the latter for sheep feed during August and September when grass is likely to be short, and he represented this attention to roots as no unusual thing in his district of country. Over twenty-five years experience in this country had only served in his case to strengthen that very peculiar British prejudice in favor of ample manuring through the agency of the farmer's sheep and cattle, which seems most singularly to have melted away under the free and enlightening influences of republican agriculture. I cannot pursue the subject, but I shall hope sometimes to have the opportunity of examining more closely the farming, of which such roots, and sheep, and cultivators, are the emblems, for they, as well as the crop reports of which I have above given an example, savor more strongly of the principles and the success of "English Agriculture" than anything I have seen for just about a twelve-month past.

As one draws to its conclusion a letter like this, which must be mailed, whether ready or no, at a certain hour of the clock, many things press forward upon the mind, for which room can scarcely be found in pen and ink. Among matters especially demanding notice is the public spirit with which Hamilton, in common with

several other Canadian towns, has come forward in support of the great interest on which, more than any other, the prosperity both of that country and of ours, is dependent—its agricultural improvement.

The *Genesee Farmer* also, notices our exhibition in the following terms:—

The exhibition of cattle was excellent. Shorthorns were out in great numbers—Fred. W. Stone, Geo. Miller, John Snell, and other celebrated breeders, showing many splendid animals. The Devons, too, were well represented. Of Ayrshires, with a few exceptions, the show was poor, and we did not see a good Hereford on the ground. The black, hornless Galloways were well represented. This hardy and valuable breed is being rapidly diffused through the Province.

The British breeds of sheep—Cotswolds, Leicesters, South Downs and Cheviots—were well represented. The show of Cotswolds and Leicesters was truly magnificent. Fred. W. Stone, of Moreton Lodge, Guelph, C. W., is justly celebrated as a successful breeder and importer of Cotswolds. He showed 40 Cotswolds that it would be difficult for any single breeder in England to beat. These sheep are attracting more and more attention in Canada. Their great size and mutton-producing qualities render them deservedly popular. There can be little doubt that they are the most profitable breed of mutton sheep we have. The Sweepstake for the "Best long-wooled ram of any age or breed," was awarded to a Cotswold bred by Mr. Stone and owned by Geo. Miller, of Markham.

There was a noble show of Leicesters; the splendid flocks of George Miller, of Markham, John Snell, of Edmonton, and many other celebrated breeders, being well represented. The Leicesters of Canada are a larger breed than those of England. We should judge that they have a dash of Cotswold or Teeswater blood in them. Be this as it may, the breed is well established, and they are a most useful class of sheep.

Mr. Stone showed some beautiful Sussex Downs; Mr. Spencer, of Whitby, some fine Hampshire Downs; the latter is a larger breed than the Sussex, and is rapidly gaining favor. Jas. Dickson, and many others, showed excellent South Downs. There was a good show of Cheviots. There were only a few pens of Merinos. Fine-wooled sheep receive but little attention in Canada.

There was a good show of pigs—the "improved Berkshires" predominating. From their appearance, we suppose the improvement has been effected by crossing with the Essex. There were very few Suffolks, and only a few pens of Yorkshire or other large breeds. One Lancashire sow, exhibited by G. E. Cresswell, of Harpurhey, attracted attention from her immense size. She measured 7 feet 7 inches in length, and 7 feet girth under the fore legs.

The show of agricultural implements was not as large as usual. The implements and machines of Canada have a substantial, English look. Iron harrows, long-handled plows, turnip drills, etc., reminded us of an English Fair ground. There were six or eight different kinds of turnip drills, for sowing one or two ridges at a time—indicating that the culture of root crops is greatly on the increase.

There was a fine show of fruits, and a most magnificent display of vegetables—the latter we have never seen equalled in the "States," and we question if it is often surpassed in any country.

But the most interesting feature of the Exhibition was *the wheat*.

For the "Best two bushels of Winter Wheat," there were 83 entries; for Spring Wheat 84 entries. The "Canada Company" offer a standing prize of £25 for the best 25 bushels of winter wheat—the prize wheat to be given to the Company for distribution. For this prize there were 32 entries, or 800 bushels! Think of it, ye wheat growers of the "Genesee Country," and let us look to our laurels! We *could*, doubtless, make as good a display at our own State Fair, but certes, we never have. The judges are provided with an instrument for the determining with accuracy and despatch the weight per bushel, and they told us that not one of these samples weighed less than 63 lbs. per bushel, and the heaviest was 66½ lbs.! Like our wheat, several of these samples bore the marks of having been stung by the midge, but the maggots had not been able to penetrate the grain to any depth, and had done little or no damage except to the appearance of the sample. Canadian farmers have just cause to be proud of their exhibition. Each Annual Fair indicates rapid improvement, not only in stock, but in all agricultural and horticultural productions; and it may be safely asserted that the farmers of Canada West are second to none on this side of the Atlantic.

New York.—The New York State Fair was held at Elmira, on the 2d, 3d, 4th and 5th of October. This exhibition appears on the whole to have been unsuccessful. The exhibition in 1859 at Albany was a splendid success, but this of 1860 appears to have been quite below the average for some years past. We select some items in reference to it from Moore's *Rural New-Yorker*:—

The Twentieth Annual Exhibition of the New York State Agricultural Society, held at Elmira last week, resulted quite differently from what officers, members and friends anticipated. The weather was unfavorable, the display meagre, and the attendance and receipts limited. Arrangements had been made for a large and complete exhibition in the various departments—the stables for Horses, stalls for Cattle, pens for Sheep and Swine, and halls for Fruit and various products and manufactures, being abundant and spacious, though the grounds occupied were

not as large as usual, comprising only a little over twenty acres. Small as were the grounds, however, there was no cause of complaint for lack of room; and as to the stock stalls and pens, not half of them were occupied. Indeed, we never attended a N. Y. State Fair which was so deficient in almost every class—the Fruit, Implement, and Mechanical department being about the only creditable ones in the whole exhibition. Much of the apparent meagerness may be attributed to the weather, but surely a *State* Fair ought to excel an ordinary County Exhibition in every particular;—it is nevertheless true that in several classes (such as Grain, Dairy Products, Vegetables, &c.,) the recent Monroe County Fair was superior, in both the number and quality of articles presented, to that of Elmira.

Stock Department.—Cattle.—Were we to sum up this department of the exhibition in as few words as possible, we would be compelled to write over against it—a complete failure. In certain breeds of cattle there were not a sufficient number shown to relieve the society of the *three* premiums offered; and, in some instances, where the enumeration was large enough for the purpose, the animals were utterly unworthy of such distinction.

Durhams.—There were twenty-five or thirty representatives of the short horns on exhibition, and among these some quite choice stock. In aged bulls, Cooper Sayre of Oaks Corners, Ontario Co., had one of the produce of old "Neptune,"—said to resemble his size very strongly, which was a fine animal. A. F. Wood and T. S. Harrison of St. Lawrence County, A. M. Underhill of Dutchess, John R. Page, H. S. Dunning, J. M. Sherwood, and Abram Myers of Cayuga, James O. Sheldon of Ontario, A. B. Benham of Tompkins, and J. B. Garrett of Onondaga, were the principal exhibitors, and brought forward some good stock in the competition.

We can not pass from the Durhams without mention of the "Prince of Wales," a two year old bull, exhibited by Geo. Miller of Markham, C. W. This animal was the winner of the first prize in his class, and of the gold medal at the Provincial Exhibition at Hamilton. He was exhibited at the Livingston Co. (N. Y.) Fair week before last, and carried off the sweepstakes. He is a superb specimen, *bodily*, but, as we think, with a little too much legs. However, this defect was very apparent in almost every specimen exhibited. A second animal was shown in this class (Foreign Cattle) by Adam Fergusson of Hamilton.

Devons.—Passing from the space allotted to Short-Horns to that given to the Devons, we hoped to see the scantiness relieved, but were disappointed. In aged bulls there was no competition, and but one premium awarded, which was taken by an animal owned by E. Cornell of Tompkins. The exhibitors were D. M. Lindsay of Steuben, S. W. Johnston and S. W. Bradley of Cattaraugus, E. Ottley of Ontario, Clark Hyatt of Tioga, and E. G. Cook of Jefferson.

Herefords.—Here there seemed to be something of a gain, in numbers, at least, as one of the competitors, E. Corning, Jr., of Albany, made a fair contribution. In certain divisions, however, the same deficiency as heretofore noted was apparent.

[The display in the other classes of cattle, viz: Ayrshires, Alderneys, Holland Cattle, Grades, &c., was also very inferior.]

Horses.—While this part of the Fair labored, to some extent, under the same difficulties which detracted from the merit and interest of other portions, it was compelled to sustain an additional burthen. The race on Wednesday, between "Flora Temple" and "Patchen," drew thousands from the Society's Exhibition, and compelled examining committees to attempt two day's labor in one. As a consequence everything was in admirable confusion. Matched Teams, Trotting Stallions and Trotting Geldings, Draught Horses and Roadsters, Thorough-breds, and those totally destitute of breeding, were vieing with each other for the praise of outsiders and the premiums. Amid all this, it was an unenviable job to get any information, or judge concerning the merits of the various animals shown. [The display of horses on the whole appears to have been somewhat better than the other departments of live stock.]

The advertising card among the horses was the Arabian, (but one was on the grounds,) presented to Hon. Wm. H. Seward,. This horse has latterly undergone the privations and hardships of a long sea voyage, and we must make allowance therefor, but we believe that nineteen out of twenty who saw him, when asked for an opinion, would express disappointment, if nothing couched in stronger terms. He is, we think, considerably under fifteen hands, dark bay, black mane and tail, the latter fine, long and thin; small head, well set on; large bright eyes; a medium nostril; and is badly marked with white, especially upon the back. There may be something very valuable about him, and well worth the notoriety which the press and the Society have accorded, but there were a score of animals exhibited which will not even receive "honorable mention," that, in our humble opinion, possessed more spirit, power, endurance, style, speed, and all the other desirable features which constitute a good horse.

Sheep.—This department of the exhibition might be characterized as fair in numbers, and a very good average of the total would be pronounced of excellent quality. The bulk of the display was made up of Mutton breeds, so much so, we begin to fear that our farmers are deserting the fine wooled varieties.

We have not space for the notices of the various breeds: Spanish Merinos, Silesian Merinos, French Merinos, Cross Breeds, South Downs, Shropshire Downs, Hampshire Downs, Cheviots, New Oxfordshire, Cotswolds, &c. We under-

stand that Samuel Thorne, and Jacob Lorillard of Westchester Co., exhibited some splendid Sussex and Shropshire Downs, of recent importation. We find the following notice of Canadian exhibitors:—

Foreign Sheep.—John Miller of Pickering, C. W., exhibited several remarkably fine Leicesters, among others the "1st Prize" of the Provincial Show. George Miller of Markham, C. W., had the Cotswold and its crosses. A two-year otd buck, weight 379 pounds, winner of the "1st prize" and silver medal at Hamilton, was in this collection. John Snell of Brampton, C. W., exhibited Lincolnshires, Cotswolds, and Leicestershires, in profusion.

Dairy and Grain.—In the building appropriated to dairy products we found but little that legitimately belonged there. Indeed, the dairy interests of the State were never so poorly represented at any State Fair that we have ever attended, unless our recollection is very much at fault. There were some choice specimens of butter, in all forty lots. In addition to this, some half a dozen cheeses made up the collection.

In the same building we found some very good wheat, Dayton, Red Spring, Mediteranean, &c., six or eight barrels in all, aud a few bags. The exhibition of oats was very fair, and we counted about twenty lots, and some very plump, heavy specimens. The Poland seemed to prevail, though there was a very fine lot labelled "*California Oats.*" Of corn, there were but two barrels shelled, and a few ears. The barley exhibited was very fine, and the same may be said of the Timothy seed, of which there were several samples.

Agricutural Implements, &c.—The exhibition of Agricultural Implements, Machinery, &c., was very good—large and varied for the locality, though not so extensive as at Albany last season. It included the usual "assortment"—reapers and mowers, horse powers and threshers, portable and other engines, plows, harrows, cultivators, drills, horse rakes, ditching machines, potato diggers, hay and cheese presses, cider mills, churns, bee hives &c, &c. The display comprised quite a number of noteworthy improvements, and a few novelties.

Kalamazoo National Horse Exhibition.—This show was held at Kalamazoo, Michigan, on 10th to 13th September, and attracted a large number of visitors and exhibitors from the adjoining States and this province. There were about 190 horses entered for competition, principally in the trotting classes, and the *trials* of course formed the main feature of the exhibition, especially when such celebrated animals as Flora Temple and Ethan Allen came on the track. The prizes ranged from $10 to $150. Amongst the exhibiters from Canada who received prizes were D. McKellar, of London; D. Rowntree, York Township, and James Bell, Weston. We find in the Detroit *Tribune*, that during the trial of thorough bred horses there was much excitement, and several persons offered to bet various sums on the issue. This conduct gave offence to many persons who like to improve the breed of horses but are opposed to betting or gambling of any kind, and the society have taken steps to prevent the recurrence of such interruptions. The Hon. Charles E. Stuart, the President, addressed the crowd on the Stand House, and said that any person who gave the least annoyance by offering to bet money on the horses would be removed from the stand, and expelled from the Park if necessary. He said that the Kalamazoo National Association were determined that the Horse Fairs should be conducted in such a way that all classes may visit them without receiving annoyance of any kind. The Police had already received instructions to expel offenders, and he trusted there would be no occasion to resort to such an extreme course.

Maine State Horse Exhibition.—This was the first exhibition of the "Association for the Improvement of Horses in Maine." It was held at Augusta, on 20th to 22nd September. There were premiums offered to the amount of $1600 or $1700 for stallions, mares and geldings of different ages, for family horses, matched horses, fancy matched horses, team horses, saddle horses, running horses, pacing horses, trotting horses, and for displays of horsemanship, and horsewomanship. There were one hundred and forty-eight horses entered for competition. All were put to some trial of speed or strength, the general rule being to run or trot the competing horses together in mile heats, the winner of two or three heats receiving the prize. So that the exhibition resembled very much in its general features four days of what are usually called running and trotting races. The attendance of visitors was pretty large, the receipts sufficient to pay expenses, and the result considered highly satisfactory.

County Shows, Upper Canada.

North Wellington.—The Show of this Society was held at Fergus on Tuesday 9th October, and was considered the most successful yet held by the Society. The stock, agricultural productions, dairy products and implements, were all good. The principal exhibiters of horses were Messrs. Linwood, Hunter, Gordon and Rennie; of cattle Messrs. Watt, Caldwell, McDowall and Ironside; of sheep, Messrs. Tindale, Gordon, McDowall and Proudfoot.

East Elgin.—This Society held its show on Tuesday 2d October, at St. Thomas. Mr. Wm. Shore carried off all the prizes for Durham cattle, and Mr. Locke all those for Devons. There were no other pure bred classes. Amongst the exhibiters of horses were Messrs. James Armstrong, John King, Elihu Moore, G. Hetherington, &c.

West York and Etobicoke.—This was a Union exhibition of the Riding and the County, and was in every respect successful. It was held at the Mimico Village, Dundas Street, on

Oct. 11. There were about a thousand entries. The stock exhibited was amongst the best in the Province. The grain, roots and fruit, of which the display was large and imposing, could not be surpassed in quality. The chief exhibitors of Durhams were Messrs. John Snell, John Clayton, John Gill, Edw. Musson; of Devons, John Moore; of Galloways, Messrs. Snell, Wilcox, Torrance, Moore; of Ayrshires Mr. R. L. Denison. Of sheep, Messrs. Snell, Jackson, Smith, Jennings and Coates. Of Implements, Mahaffey, of Brampton; Mallaby, of Weston; Carlton and Son, York Township; Bell, Toronto; Leffler, Streetsville, Savage, Toronto Township; Wilkinson, Vaughan; Modeland, Brampton; Patterson & Brothers, Richmond Hill, &c.

East York and Markham.—This was also a Union exhibition. It took place at Markham Village on Thursday, October 9th, and was what may be called "a great success." Some of the leading exhibitors at the Provincial Shows reside in the Riding and were present in force on this occasion. It is only necessary to mention the names of the Millers, the Wheelers, the Armstrongs, the Crawfords, &c, amongst the competitors to show that the exhibition must have been a good one. The Markham *Economist* says:—

There was a fine exhibition of Implements, a good show of Horses, Cattle, Sheep, Swine and Poultry, and all the available space not taken up by the stock and the large tent in the centre of the field, was occupied by well dressed farmers, their wives and daughters.

The show of Roots has seldom been equalled in Canada, amongst which were some new and highly prized potatos, exhibited by Joshua Sisley, of Scarborough. The ladies' department was well represented, but by no means as well as was done last year. L. Crosby & Co.'s specimens of fruit attached much well deserved attention. We will just add, that no less than one thousand entries were made in this exhibition, and over thirteen hundred tickets were sold to the tent. Many more would have been sold had the canvas been twice or three times the size.

Toronto.—This was a Union Exhibition of the City of Toronto Electoral Division, and the City Horticultural Societies. It was an exceedingly well got up affair, buildings and tents being erected at a heavy expense for the ocasion. The competition was confined to Agricultural products, fruit, plants and flowers, and the display of those articles could scarcely have been surpassed. It was a great floral féte. The Show was held on the magnificent grounds presented to the Horticultural Society by the Hon. G. W. Allan. It took place on the 11th and 12th September, on the occasion of the visit of His Royal Highness the Prince of Wales, who kindly consented to inaugurate the gardens by planting a handsome young maple tree. The number of visitors was large but not sufficiently so to pay expenses. Had not the weather unfortunately been very unfavorable the exhibition might have been profitable. As it was the Horticultural Society suffered a pretty heavy pecuniary loss.

South Lanark.—Exhibition held at Perth, on Monday, October 1st. The day was very wet, cold, and uncomfortable, and in consequence the Show may be regarded as a comparative failure. Still there was a considerable number of exhibitors, although it was impossible to show anything to advantage. We noticed some fine sheep, cattle and horses, and more particularly a splendid spring bull calf—a short-horned Durham—belonging to Mr. W. Weir, and which weighed 756 lbs., and attracted a good deal of attention. There was a good assortment of vegetables, including potatos, beets, carrots, turnips, mangolds, cabbages, caulifiowers, &c,, in all which the samples shown were very large, and looked well. There were also samples of wheat, oats, rye, barley, and Indian corn—very good. Several firkins of excellent butter were on exhibition.—*Perth Courier.*

West Northumberland, Now and Thirty Years Ago.—We are indebted for the following particulars to an esteemed correspondent:—

The annual exhibition of the West Riding of Northumberland Agricultural Soeiety was held at Cobourg, on the 17th October. Though the morning was wet and threatening, which, no doubt, prevented many from attending from a distance who would otherwise have been present, yet the show was fully equal to any former one of the society. In horses, the principal exhibiters were Crawford, McKecknie and Beatty. In the spans of farm horses some fine teams were shown, the first prize being awarded to a pair of grey horses belonging to Wm. McDougal, Esq., Baltimore. In Durham cattle, the principal exhibiters were Messrs. John and Charles Wade, G. Roddick, Alcorn, and McMurtry, who all figure in the prize list. The Devons were shown by the Messrs. Eagleson and Mason, and were more numerous than on former occasions. In Ayrshires, the exhibiter was Mr. Wright, whose herd is well known, and Pratt. Of Galloways, the herds of George and William Roddick were on the ground, and justly admired. There was a good show of long woolled sheep; specimens were on the ground from the flocks of Carruthers, Craig, Cullis, Alcorn, Underwood, Pratt, and Wade. In short wools, the exhibiters were Hinman and Fish. There was an excellent show of all kinds of grain, dairy products and articles of domestic industry, the quality being in almost all cases all that could be desired, but we should have liked to have seen a greater quantity.

The show of roots was magnificent, fully equal to the late Provincial Exhibition; there was so little of mediocrity, and so many superior specimens of turnips, carrots, mangel wurzels and sugar beets, that the task of the judges must

have been a difficult one. Some of the first prize white carrots exceeded two feet in length, and weighed nearly eight pounds each. The Directors added a Ladies' Department to the show this year; the display brought out was highly creditable for a first effort, and gave promise of greater interest in future. The premiums offered amounted to upwards of six hundred dollars, and the entries were over five hundred in number.

We may notice in connection with this show, that (thanks to the kindness of the then Secretary, Mr. Steele,) we have now lying before us the report of the first show ever held by the County of Northumberland Agricultural Society; said show having been held at the Village of Colborne, in the Township of Cramahe, on the 19th of October, 1829, when premiums to the amount of eighty-five dollars appear to have been paid. To the honor of this society, we notice that they gave two prizes, one of five dollars and a second of three dollars, for the best written essay on the culture of wheat. Do any of our societies give such premiums now? The report is a small pamphlet which contains an excellent introduction, pointing out the objects and benefits of agricultural societies, and giving an account of the first formation of their own—then the rules and regulations of the society, with a list of the officers and directors—next the two prize essays on the culture of wheat, and concludes with some remarks on the show: thus, that "There were premiums offered for ewes, butter, and ploughing, but no candidate appeared, except one person to plough. The preceding part of the day being wet and stormy, kept back a great number of people from a distance; yet notwithstanding, the meeting was well attended, all things considered, and the greatest good humor and harmony prevailed during the course of the day, and all went away apparently well satisfied with the results of the day's transactions." We may add that the report appears to have been printed in Kingston. At that period we believe there was no printing press between Kingston and York, now Toronto.

W. R.

TOWNSHIP SHOWS, UPPER CANADA.

Vespra.—The Vespra Branch Agricultural Society's annual show of stock, grain, &c., took place on the farm of Mr. Mairs, Penetanguishene Road, on Wesnesday, September 26th. Considering the unfavorable state of the weather, the show was well attended; some excellent stock, &c., were shown. The members of this society take the palm from the rest of the county for raising good stock. The principal exhibiters of cattle were Messrs. Cave, Pass, and Partridge.

Erin.—The annual exhibition of the Erin Township Agricultural Society was held in the village of Ospringe on Wednesday, 10th October. The weather was propitious, and many hundreds of the rural population of the adjoining country were assembled on the show ground. The township of Erin being comparatively but recently settled cannot be expected to make such an exhibition of live stock as Eramosa or Guelph, but every succeeding show gives evidence of improvement, while in the produce department, some samples of grain and several of roots and vegetables, would have compared favorably with those exhibited by Agricultural Societies of longer standing in the neighboring townships. Messrs. John Clark, Malcolm McLaughlin, Wm. Smith, and Peter Aurey were amongst the exhibiters of horses; Messrs. Hugh McMillan, Thos. Tolton, John Kerr, Geo. Fergusson, of cattle. Mr. A. McMillan carried off the majority of the prizes for sheep.

Wellesley.—The Annual show of this Society took place at Wellesley Village on Wednesday, Oct. 10. The day was a very favourable one for the purpose, the weather being warm and pleasant. The attendance was in consequence very large, larger we believe than at any previous show in the same township, notwithstanding that the state of the roads kept back many that would otherwise have attended from a distance. The carrots, mangel wurzels, turnips, and potatoes were a splendid sight to look at. The wheat, barley, oats and other grains showed conclusively that this township can compete with any in the Province in cereal productions. We noticed some beautiful samples of butter. The show of horses was something unexpectedly fine, at least to strangers. The show in cattle was not so large, though some excellent animals were on the ground. The show of sheep was excellent.

Lobo.—The Fall Exhibition of the Lobo Agricultural Society was held on Thursday, October 11th, on the premises of Mr. Elias Cutler, 9th concession, Lobo. The weather was very unpropitious, being rainy during the whole time of the Show. Nevertheless, there was a good display of animals, &c., on the ground, many of which plainly indicated the beneficial effects of the Society in thus producing such a marked improvement in the quality of the stock exhibited.

The show of horses was generally admitted to be such as reflected credit upon a Township Society. Of cattle, there were a considerable number of thorough-bred, and a large number of grade.

The sheep were good, and there was quite a large number entered. The grain and root department was lacking somewhat in quantity, but not quality, for the samples shown were of a very fair stamp. Altogether the Show was a good one.—*London Free Press.*

South Dorchester.—Show held at Village of Lyons on 13th October. The day was fine and the attendance good. There was a good collection of stock and produce, the number of entries being 355. The show was highly creditable for a new township.

North Dorchester.—The show was held at Edwardsburgh, on Tuesday October 16th. The stock, roots, seeds, &c. were superior. At the close of the proceedings the society resolved to devote its next years funds in aid of the Provincial Exhibition.

Puslinch.—The exhibition took place at Ingram's Inn, Brock Road, on Tuesday, 16th Oct. inst. The day was lovely, and there was a large attendance of the substantial yeomanry of the township, as also of their wives, sons, and daughters. The display was magnificent, in fact the best that has ever taken place in Puslinch. The number of entries was 589. The turn-out of horses was really capital, and it was stated by one of the judges that in this department the show has never been equalled at any show in the county of Wellington. The roots too, were uncommonly large and fine, some of the turnips weighing 15 lbs. each. The show of potatoes and apples was also very fine. In domestic manufactures, Puslinch takes the lead of all the other townships in the County, and the display in this department was excellent both in quantity and quality. Amongst the leading exhibiters, were Messrs. F. W. Stone, John Iles, Patrick Hughes, Thomas Arkell, and others well known at the Provincial Exhibitions.

West Nissouri.—The Fair of this Society was held on Thursday, Oct. 11th. The weather being wet and disagreeable was a serious drawback on the enjoyments of the occasion, and a great many specimens of good stock that appeared on our show-ground last year, were absent in consequence of the bad weather.—*Free Press.*

Scarboro.—Show held Oct. 5th. A spirited competition. Good horses and cattle shown by Messrs. Crawford, Dixon, Lawrie, Malcolm, Wheler, Torrance, &c. There was also a good show of grain, roots, &c.

Hints about Selling Wheat.

Having long entertained the opinion that farmers do not pursue the most profitable plan in disposing of their wheat, allow me to express my convictions and offer a few suggestions on the subject, for the consideration of the large class interested.

Generally, as soon as harvest is over, all the threshing machines are put in motion, hurrying the threshing of wheat at the rate of 250 to 500 bushels per day to each machine, and by the middle of November the great bulk of the crop is out of the farmers' hands in the possession or control of speculators. It has always appeared to me that a different course would be better—that if farmers would only dispose of, say one-third or one-fourth of their wheat by the middle of November, another fourth or third by the middle of February, and the balance by the opening of navigation, they might be better rewarded for their labor, while the cost to the consumer would perhaps be little if any more. There is not probably another country on the globe where the wheat is disposed of so soon after harvest as in this. Certainly there was no other cause than the hurrying it to market, which caused it to decline three shillings per bushel immediately after harvest last year. There was then little stock on hand, and if farmers had held the crop one month longer than they did, there would have been no fall in price. The surplus will be trifling this season, and what there is must be held in the city of New York. In several places in Ohio, and other Western and Southern States, the prices of wheat and flour are about the same as in New York city.

Now, I am aware that this is unpopular doctrine, but I write what I believe is for the good of the farmer. The banks, the merchants and the money dealers are anxious to have the farmers send forward their crops to relieve the money market;—at least when there is any money pressure, the cry with such men is to have the farmers send forward their crops. The pressure season (which usually occurs immediately after harvest,) appears to be about the only time that the farmer seems of any importance. I have often felt vexed when I heard the merchants, and money changers, &c., say, 'Money will be plenty when the farmers send forward crops;' and I would respond, 'If the prices are not remunerative, and they don't send them forward, what will you do for money then?' The answer usually was, 'they *must* send them forward; they cannot keep them; banks wont loan money to them to hold on to their crops, but will loan plenty to dealers to pay for produce.'

Think of this farmers, everywhere, and arrange your plans so that you will not be obliged to sell your crops until a paying price can be obtained. The mechanics and the merchants have their regular stated prices, and you must either pay them or do without their services or their goods. The money lender must have the full interest, or you cannot have his money. And pray why may not the farmer set his own price—*a fair, remunerating price*—or hold his produce until he gets it, or finds there is a large surplus the world over, and he must take less? It has been my conviction for many years that, of all classes of men, the farmers are most at the mercy of others. Every thing a farmer has to purchase, he has to pay the asking price for, even from a reaper and mower to a pound of sugar; and when he carries his grain to the village, where there are only two or three buyers, they can arrange among themselves and make their own price.

Now, if the farmer would keep his produce at home *until the buyer comes and contracts for it*, (as we go to dealers when we want goods,) then he would know what he is to receive. The truth is, grain ought to ke kept in the farmers' hands until needed for consumption. There is

no use in having millions of bushels and barrels stored in the great cities for six months in the year, and the producers should be set right on the subject. If any other article for a yearly consumption was to be thrown on the market in the course of a month or six weeks, it could never bring as fair a price as if sold when wanted for use. Men and brethren, are not these things so?—and am I not right in affirming that the farmes, as a class, should exercise their *brains* as well as hands in promotion of their interests? Must they always *pay* what holders ask for goods, and *accept* what is offered for produce?

As I have already intimated, this article will give offence to some—will be unpopular among all but farmers, and even some of them may object to its position. But never mind that, farmers—and wheat growers especially. If you consider the matter properly, I believe you will come to the conclusion that produce is sent to market far too rappidly after the harvest is completed. If held until the first of November, the buyers will be after your crops—for they must be had, and nearly all consumed before another year comes round. If all wheat growers were to take things calmly, and sell their grain regularly, say from harvest until April, I have no doubt the result would be more advantageous to them than by pursuing the usual policy. Take farmers in general: the return they receive is smaller, for the capital invested, than in any other occupation: and if they were to live like merchants, they would fail. Having given much thought to this matter, I belive that farmers might and ought to occupy a higher and more independent position in society than they do, and hence the reflections and suggestions now submitted for their consideration.—*D. W. Beadle, St. Catharines Journal.*

Importance of Salt in Agriculture.

If we should ask why so enormous a quantity of this inestimable gift of salt is distributed throughout the earth; why three-fourths of the surface of the planet designed for the use of man is covered with it; the answer would be,—in order to preserve the work of nature, to enable man the more readily to sustain himself, and to make him wealthier and better. It has become an indispensable condition for the existence of man, and his civilization. In all organic beings we meet with two processes—that of life and that of decomposition—the latter beginning its full activity after the former has achieved its end, at the moment when organic beings are dissolved into those constituents from which the plant was formed and nourished.

If, however, we intend to check, or at least delay decomposition, we must employ acids, for we know that the Creator formed of the sea-salt a mighty barrier against the immeasurable mass of water becoming putrid; we know that our stocks of flesh, grease, &c., are preserved by the application of salt; that cabbage-water, acids in general, and kitchen-salt are the means employed by the agriculturist against septic diseases in our domestic animals, and against diseases of the mouth and feet. The separation of milk and deposit of meat will be increased by the application of salt, thus forming the essential means for the promotion of cattle-raising. By the application of salt, the fruits, especially wine, will become much better; and even the ancients were in the habit of throwing salt on their grounds, their vineyards, and fruit trees. Agricultural chemistry informs us that the simplest combinations through which nourishment is conveyed to plants consist in acids, alkalies, and alkaline substances. Animal chemistry shows that free muriatic acid and kitchen-salt form the principal constituents of the contents of the stomach.

In a French prize paper, by Dr. Desaive, on the manifold advantages of the use of salt in agriculture, the following results have been laid down by the celebrated French veterinary surgeon, Grogniez:

Common salt serves as a preventive of the fermentation and heating of hay, which has been heaped up in large stacks during wet weather. Forty quintals of hay require fifteen pounds of salt, to be strewn among its alternate layers.

This effect is much better shown in straw, which, if intended to be used as fodder, by being moistened with salt water, may be preserved for a long time, when it can be given to cattle instead of hay, a method in use among the ancients.

Leaves of trees, when put in ditches with salt, may be prevented for a long time from putrefactive fermentation, and will even make good forage. Intelligent farmers of the Mont d'Orlyonais are in the habit of thus preserving their vine leaves as fodder for goats.

Fodder of inferior quality, for instance, straw, or other kinds, soaked and bleached by rain and sun, cured too late, or become woody, may be rendered more palatable and easy of digestion by being salted. A pound of salt in three quarts of water is required for a quintal of bad hay.

The sharp taste which the milk of cows usually assumes in consequence of beets, turnips, and white cabbage being continually fed to them, can be removed by salting those vegetables.

In Flanders, common salt is strewn on new and wet oats, to be fed to horses, and, thus prepared, will not be dangerous to the animals. The same application may also be made to hay newly harvested, to prevent injuries when it may become necessary to feed such hay, the moisture of which has not been fully evaporated.

Though the bad qualities of dusty, muddy, or mouldy fodder, after having been washed and threshed, are not entirely removed, yet, by giving a sprinkling of salt water, they will be diminished to a considerable degree. This fact will be of advantage to the farmer whenever he may be in want of appropriate fodder.

By means of salt, such water as otherwise

could not be used for cattle for drinking, will be rendered proper.

The great advantages to be derived from common salt with regard to the health of cattle, have been clearly shown by many experiments made by that learned and celebrated agriculturist of Alsace, M. Boussingault. Cattle, by being fed with salt, receive a soft and glossy skin, their digestion and appetite are in good order, and they increase in flesh and strength. Cows thus fed yield much milk, while those treated otherwise have dull skins, with rough hairs, exhibit less appetite, produce a smaller amount of flesh, and yield not only inferior quantity, but also quality, of milk.

Manure from cattle fed with salted fodder is also of a better quality.

Finally, manuring with salt will banish mosses and hurtful parasitical plants from meadows.—*U. S. Patent Office Report.*

Cider-Making.

We find in the Ohio *Farmer*, the following admirable directions on cider-making:—

Although nearly every farmer makes from one to twenty or more barrels of cider yearly, yet few apply to the manufacture any more than a mechanical knowledge, or the following of some routine method descended from father to son, and the consequence is, that no more than one-tenth of the liquor denominated cider, deserves a name beyond that of poor vinegar.

Cider when carefully made, with a due knowledge of its properties, becomes a pleasant and healthful drink, far better in its native purity than when manufactured and sold as champagne wine; for be it known, very many thousand bottles of so-called champagne are nothing more than cider re-manufactured. All varieties of apples can be manufactured into cider, yet the properties of a cider and a table apple are very different, although sometimes combined in the same fruit. Toughness, dryness, and a fibrous flesh, and astringency, are all good properties in a cider-apple. Yellow flesh indicates richness and strength; and the heavier the mast, the stronger the cider. Late ripening apples, or those which require to be housed, are not profitable for cider, because of the extra expense of housing; all apples requiring to be fully ripe and mellow before making up. Apples which fall from the tree fully ripe, make better cider than those which are shaken off the tree. Keeping the fruit under cover from one to three weeks before making up, increases the strength and flavor of the cider. Care must be taken that the fruit is spread thin and freely exposed to the currents of air, otherwise it will often contract an unpleasant smell, which will affect the taste of the cider. As the fruit becomes ripened and mellow, the juice is reduced in quantity, but increased in weight, and heightened in flavor. If, however, they are left too long, and decay commences, the quality is injured by a peculiar musty tone or flavor imparted to the liquor; all decayed or decaying fruits should, therefore, be carefully picked out before grinding. Unripe apples should never be mixed with those fully ripened and mellow; much of the merit of cider depends upon the proper separation of fruit, as we have just stated, and also in selecting colors; those of a rich, yellow tinge in skin being superior to those of a greenish cast; they should never be mixed. Mixing varieties, while it often adds to the value of the cider, must not be done, if any certain quality is sought to be obtained, and a uniform character established by the manufacturer, unless it may be that two distinct varieties are mixed in certain proportions, as two to one, etc., and a quality of cider made, which it is desired to have again and again. In such a case the same mixture must be made, and the like proportions. An astringent, harsh fruit, and a rich sweet apple will often be found to combine the qualities requisite for the very highest flavor, and heaviest body.

Grinding the fruit is a very important item in the manufacture of good cider. The whole fruit, pulp, seed, rind and all, should be completely mashed. If the juce of an apple be extracted without bruising the fruit, it will be found thin and defective in richness, compared to the juice of the same apple after being perfectly macerated and left exposed to the influence of the air and light for twenty-four to thirty-six hours. Grinding should, therefore, be very perfect, and the pomace remain for one or two days before making up.

The making up of the cheese for pressing should be performed only upon a clean, sweet platform, and rye straw free from rust or weeds, used to confine it in place. A gentle pressure should be first given, and the cider from such first running should be barreled by itself, the cheese allowed to stand, say twelve hours, then additional pressure given, from which will be obtained the best quality of liquor: the last running will perhaps be the most clear, but its richness will be found diminished; in other words, the saccharine matter or sugar will be less, and of course the quality inferior. After the last running, or when no more juice of the apple in its pure state can be obtained, the top of the cheese is sometimes taken off and a few pailfulls of water applied, when pressure is again applied, and a very inferior quality of liquor obtained, almost entirely destitute of sugar, but often making a tolerable vinegar.

The fermentation may be said to be the completion of the work of making and managing cider, although racking off and bottling are afterwards necessary to bring it to perfection. The time which may elapse after making the cider before fermentation commences, depends both upon the quality and condition of the fruit from which it is made, and the temperature of the weather. If the fruit is only partially ripe and

the weather warm, fermentation often commences within a few hours after expressing the juice, while if the weather is cold and the fruit well ripened, days, or possibly weeks may elapse before fermentation commences. In either case, it is better to place the casks under a shed protected from the sun, but open to a free circulation of air. Leave out the bungs. Have ready a cask with the bung kept in, and as the fermentation goes on, and the froth issues from the bung-holes, fill up from day to day from the cask in which the bung has been kept. As soon as the froth ceases to issue from the bung-holes, see that the cask is full, then drive in the bungs tightly, leaving open a small vent or spigot for a few days, or until the froth becomes like pure light cream, free from dirty particles, then close all up tight; the less fermentation takes place, the sweeter will be the liquor. Clean, sweet casks must always be supplied, and if any tinge of mustiness, slack some fresh lime in each cask, leaving it from one to four hours. If one operation is not sufficient repeat the process.

Correspondence.

Education of Farmers' Sons in Canada.

Editor Agriculturist.—This is a subject that every true Canadian should feel a deep interest in, and which is not only of importance to the agricultural class of the community, but to the vital interests of the Province itself.

Canada is purely an agricultural country, and must remain so for many years to come; and just in proportion as this department of Canadian industry flourishes, will the country rise in importance and wealth. Every Canadian farmer will readily see the desirability of having our present low state of agricultural art and science improved, and the very intimate connection which exists between this improvement and his own prosperity, and the prosperity and future wealth of his posterity. Admitting then the desirability of this he will see the necessity of the enquiry, how may this improvement be best brought about? I am led to believe that one thing mainly is wanting, *viz:* more *educated farmers;* not Latin and Greek scholars, but farmers educated in their own calling and profession—educated in both the *theory* and *practice* of every routine of farming operations, and in all the physical sciences bearing upon them. With such farmers, and with such an agricultural soil as we possess, what might we not expect in future of Canada and of the Canadian people? But such a class of men cannot be made out of our present farmers. Their time of education has gone by. They of course may increase their knowledge of the practical part of their profession, and this is nearly all the improvement that could be expected of them; but it is not so with their sons—on whom the hope of Canada in this respect altogether depends. This class of men, unfortunately for Canada, is extremely scarce, but it could not be otherwise with the present generation. The majority of our present Canadian farmers belong to that sturdy class, who, with stout hearts and strong nerves, have in an almost miraculous manner changed a wilderness into fertile fields, and into the comfortable homes of a happy and prosperous people. They have done their duty well, and a happy thing it would be for Canada, would we their successors battle as energetically for its success as our fathers have done. But the work we have to do differs from theirs. The pioneers of Canada had to do with felling trees; clearing away the forests; removing stumps, stones, and whatever might interfere with the plough or harrow; opening up highways and such like improvements; all of which we receive from their hands ready-wrought. While engaged in those arduous employments they had no opportunity for acquiring a practical and scientific knowledge of agriculture, and in fact they had no need of it. Their work was different from that of the farmer now. They indeed had to learn their business, but it was all handi-work, there was no science in it. Had they been acquainted with all the various branches of natural science which are now in older countries happily called in to the farmer's aid, and without a knowledge of which no farmer can compete successfully, they could have made no use of such knowledge. So far they have done their duty well, but there remains still one duty for them to perform—a duty which every loyal subject owes to his country, which every christion owes to his posterity—one which is of vital importance to our common country, and on the faithful performance of which the future greatness of Canada in a great degree depends—that duty is *to educate their sons;* not as lawyers, doctors, merchants, or tradesmen, for we have too many of these already, but to educate them *as farmers.* The majority of the children of school age in Canada are those of farmers, whose parents are the bone and sinew of the country, and who represent the greater part of its wealth; yet this is the class of children most neglected in their education. If ever one of them is pushed on beyond the mere rudiments, it is to prepare him for some one of the round of trades or professions; all of which are already over-stocked. Occasionally a farmer may be found who thinks he is not keeping up with the times in educational matters, if he is not educating some one of his sons for a doctor, or a lawyer, but how rarely will you find one educating his children for his own noble calling,—whose sons are at the University learning the principles of Agriculture? A great improvement is required in this respect, and should be loudly called for. There are some obstacles in the way of this improvement, but they chiefly lie with the farmers themselves. The principal one is the very prevalent notion, that to be a farmer a boy requires very little education. To teach him to work is thought the only thing

needful. The thought of teaching him *to like the work* is never entertained. Without this education he is set to work too much, like a machine, or like the horse, or the ox. There is *no science, no intellect* carried into it. And if the boy happens not to like the work he is set to do, (and scarcely one out of ten does, under the circumstances,) the stupidity is all attributed to the pupil, none to the master. The farmer is too apt to think that as he has succeeded well without education, his son receiving perhaps a cleared farm, should, at least, do as well as he. He is too apt to forget that land, like anything else, may be worn out; that when his fields have been cultivated 50 or 60 years, something else besides ploughing and sowing will be required in order to obtain such crops as he has been accustomed to raise. He does not recollect that many of the *worn-out* farms of the eastern and southern States bore good crops when new.

To the farmer divested of those erroneous notions, who believes that in order to make first-class farmers of his sons—to make them *respected* as such, and to cause them to become attached to their occupation, it is only necessary to educate them; the course to be pursued is easily laid down. The best course, and in fact the only one open to him in this country is to prepare his sons for entering the University of Toronto in the department of Agriculture. I give below the curriculum of this department as published by the University, containing the subjects taught, and other matters respecting the course:—

UNIVERSITY OF TORONTO.

AGRICULTURE.

The requisites for obtaining the diploma in Agriculture, are:

Having passed an examination in the subjects prescribed for Candidates for Matriculation in Agriculture.

Being of the standing of two years from Matriculation, and having passed in each of these years an examination in the subjects prescribed for each such year of the course appointed for students in Agriculture.

SUBJECTS OF EXAMINATION.

MATRICULATION.

Principles of Agriculture, (Stephens' Catechism of Practical Agriculture; Johnston's Catechism of Agricultural Chemistry and Geology.)
English Grammar and Composition.
Arithmetic, including Mensuration. Euclid, B. 1.
Outlines of English History to the present time, (White's History of Great Britain and Ireland.)
Outlines of Modern Geography, (Anderson's).
Geography of the British Empire, including her Colonies.

FIRST YEAR.

Elements of Natural Philosophy.
Elements of Chemistry.
" Zoolology and Botany, (Patterson's Zoology, Henfrey's Botany).
" Mineralogy, (Dana's Manual of Mineralogy).
" Geology, (Hitchcock's Geology).
" Physical Geography, (Buff's Physics of the Earth).
History and Principles of Agriculture, (Johnston's Elements of Agricultural Chemistry and Geology).

ENGLISH.

Composition.
Orthographical forms of the English Language.
History of the English Language.

SECOND YEAR.

Mineralogy, (Dana's System of Mineralogy).
Geology, (De la Beche's Geological Observer).
Physical Geography, (Somerville's Physical Geography).
Zoology, (Carpenter's Zoology).
Botany, (Gray's Botanical Text Book).
Surveying, Mapping and Farm Architecture.
Chemistry, as applied to Agriculture.
History and Diseases of Farm Animals, (Youatt's Treatises on the Horse, Cattle, Sheep, and the Pig).
Practice of Agriculture, including Farm Finance and Accounts, (Stephen's Farmers' Guide).

SCHOLARSHIPS.

Two Scholarships of the value of £30 each are offered for competition in this department, one amongst matriculants, and one amongst students of the standing of one year from Matriculation. Each of these Scholarships is tenable for one year, but the Scholars of each year are eligible for the Scholarships of the succeeding year.

The following is a synopsis of Professor Buckland's Lectures, extending over a course of two years, daily given in the College:—

I.—HISTORY OF THE ART.

(*a*) Agriculture, as understood and practised by the Ancients.
(*b*) Agricultnre during the Middle Ages.
(*c*) Modern Agriculture.

II.—THE SCIENCE OF AGRICULTURE.

(*a*) Soils; their origin, composition, distribution, classification, &c. Relations of Geology, Chemical and Mechanical Analyses.
(*b*) Plants: their structure, composition, growth, &c. Manures: theory, action, and relative value of; modes of preparing, applying, and economizing. Relations of Chemistry and Botany to Agriculture.
(*c*) The domesticated animals of the farm: history and description of varieties or breeds; the principles of breeding, with biographical sketches of the more distinguished breeders; diseases and treatment; relations of animal physiology to breeding, feeding, &c.
(*d*) Influence of climate on agricultural productions, both animal and vegetable. Value of

a knowledge of Meteorology and Physical Geography to farmers.

III.—THE PRACTICE OF AGRICULTURE.

(*a*) Methods of acquiring a practical knowledge of farming. Importance of an agricultural literature. Connection of theory and practice. Popular fallacies.

(*b*) Principles of cultivation: instruments of tillage, illustrated and described.

(*c*) Draining: its value and various modes of execution explained. Subsoil ploughing. Fallowing. Rotation of crops, &c.

(*d*) History, cultivation, and economic uses of the various grains, roots, &c., raised on the farm. Weeds. Blights and their remedies. Harvesting and securing crops.

(*e*) The practice of manuring, and the means of restoring exhausted land. Management of pasture. Irrigation, &c.

(*f*) The management of stock, and the construction and arrangement of farm buildings.

(*g*) Dairy management: butter and cheese-making, &c.

(*h*) Management of landed property: principles of the lease; theory of rent: relations of Political Economy to rural affairs.

(*i*) Agriculture as a pursuit: economic importance of, its place in a system of general education, tendency to foster feelings of patriotism, &c.

N.B.—Instructions are regularly given on the Experimental Grounds attached to the College, illustrating the principles of practice with science.

The Professors of Chemistry, of Natural History (including Botany and Entomology), of Mineralogy and Geology, and of Meteorology, will each give special Lectures on those branches of Scientific Agriculture which come within their respective department.

(*Books of reference*—Stephen's Farmers' Guide; London Encyclopædia of Agriculture; Morton's do; Johnston's Elements of Agricultural Chemistry and Geology; Boussingault's Rural Economy; Low's Practical Agriculture, and Domesticated Animals.)

From the above it will be seen that in order to obtain the Agricultural Diploma from the University, three examinations are required. The subjects for the first examination the student requires to know before going, and which he can easily get up at the common grammar school. The other subjects are taught in the college. If he succeeds in passing this first examination, he is then entitled to attend the whole course *free of charge*, under a staff of professors, the ablest in Canada, if not in all America, and having free access to the library, museum, &c. He of course has to pay for his board, which he can obtain in the college, or elsewhere, as he sees fit. By attending two winters he completes the course, and at the end of the second receives his diploma. Should he be fortunate enough to obtain the scholarships offered, they will about pay the whole expense.

There is scarcely a farmer in the older parts of the country, who cannot afford to send his sons through this course. And should he send but one, the influence on the rest of the family will be immense. Try it. You will never regret it. H. R.

The Dundas Report.—County, versus Township Societies.

Editor Canadian Agriculturist,—The direction of the Dundas Agricultural Society, are taken to task in your last number, for the concluding suggestion contained in their report as quoted in your journal, recommending the Legislative grant, to be appropriated exclusively to County Societies. The subject is one on which considerable diversity of opinion exists, and in my humble opinion, it is a legitimate one for fair discussion. In what manner the Directors "have abused their privilege," in giving expression to an honest and deliberate opinion, I am at a loss to discover. Of one thing I am certain, that they are open to conviction by reasonable arguments if temperately advanced, and that they have no desire to thrust their opinions upon others who may hold to the opposite view; these must just take them for what they are worth. Nor can I see any reason, why any party should stigmatize the motives of the directors, as "odiously selfish, and arrogant;" a good course needs not to be defended by any such hard terms. I am sure sir, that the directors of the Dundas Society learn with great satisfaction, that in the neighbourhood of Mount Forest, at least, "Township Societies are doing much good," and that they will cheerfully concede them to be an honourable exception, to what they still consider to be a general rule. Your correspondent affects to sneer at the "literary and scientific improvement," and "the liberal reward of merit in general" referred to in the report, overlooking altogether "the introduction of good stock." This I conceive to be one of the main objects of Agricultural Societies. Certainly one in which there is more room for improvement than anything else I know of. If there is no room for improvement in this respect at Mount Forest, I am sure even your correspondent C. will admit, that in this at least they are an exception. We all know that the importation of good stock implies a large outlay of money, so large that few farmers can undertake it for themselves; and if a County society steps in, and by a judicious expenditure of a portion of its funds becomes an importer of stock, or *adequately* rewards the farmer who incurs the risk himself, I conceive that it does more for the permanent benefit of the Province than by trifling that money away in prizes for wheel-barrows, old carts, and rickety rollers, carpets, counterpanes, and quilts, embroidery and fancy netting, and such like. If farmers are found among us with capital and enterprise enough to introduce improved stock, so much the better, but no thanks to the society, for the highest premium it can afford at present to give,

holds out no inducement for any one to make the attempt. I for one, will adhere to the *principle* of *liberal* premiums to *real* merit. If any individual in a community has enterprise enough to introduce better stock than his neighbors, the community must be benefited, and if the prize money *does* come out of our own pockets, the argument is in no wise impaired, the principle holds good, that they who share in the benefit, should in some measure pay for it.

The County of Montreal Agricultural Society, was at one time, just such a petifogging society, as are now many of our Township societies, (*the Mount Forest one always excepted.*) They held their annual shows, truthfully likened by your correspondent, to annual scrambles for pecuniary gain; and so long as each man got a share of the plunder, no fault was found, nor question asked, as to whether the County at large were receiving any benefit. A change for the better supervened; instead of year after year, squandering their money in prizes for *rubbish*, merely because it was the least unsightly rubbish on the Island of Montreal, they adopted another policy, which was, to introduce a better class of animals than they had ever dreamt of seeing there, and to elevate the tastes of the Canadian farmers to appreciate them. A certain portion of their funds, small at first, was annually devoted to the importation of animals of improved breeds from England and Scotland. Year by year they extended their operations, and any one at all acquainted with the agriculture of the Lower Province, is aware that great benefit to the public has through that instrumentality been scattered broadcast over the length and breadth of the land. In addition to other stock, that society owned in 1858, no fewer than eight imported Ayrshire bulls, and the quality of their stock may be inferred from the fact, that in that year that society carried off the sum of £51 in premiums at the Provincial Fair; and the sum was not "confined to a small circle," far less thrown to "the man in the moon," but was reinvested and re-distributed with yearly increasing advantage to all concerned. These sir, are, I believe, some of the reasons that support one suggestion in that obnoxious report. The others rest upon arguments which time and space alike forbid me at present to enter upon particularly. I would merely say that instead of a Township society *squandering* half of its funds in giving ridiculous prizes for the best bushel of grain, or of roots, let a County society award *liberal* premiums for the best managed farm, and the best fields of grain, and the best acres of roots, and to the man who can tell his neighbours in the most intelligible manner by what process of culture he has been enabled to raise the best crops. In this way, parties situated 40 *miles* from their County town, can obtain the highest prizes without moving 40 yards from their own doors. That county must be almost a continent, whose centre is 40 miles distant from its circumference, and if County towns are placed at one extremity of a County, I can see no necessity for societies to hold their show there. Of selfishness in the matter, the directors are innocent, and the officers of two of our Township societies, were the first, years ago, to recognise the principle, and to abandon the system of frittering away small prizes at *small* shows, and I believe the results have not yet disappointed their expectations. I have already occupied too much of your valuable space. One word more, I go further than that report does. I look forward to the time sir, when the independent farmers of Canada will put an end to the controversy, by discarding Legislative grants altogether; when they will come forward manfully and shoulder their own burden; when they will refuse to allow merchants and mechanics to be taxed in support of agricultural societies; then, and not till then, will our societies stand on a firm foundation, and be in a condition to accomplish the best results. This may not be anticipated by all of my fellow directors, but it is sir of your's

ONE OF 'EM.

Dundas, Nov. 1, 1860.

Spring Pigs.

EDITOR AGRICULTURIST,—Would you favor me with a reply to the following question, through the columns of the *Agriculturist*.

Can pigs dropped before the 1st of March (say the 1st of February) be shown as Spring Pigs in agricultural shows? A SUBSCRIBER.

Culross, Oct. 1860.

[This point we should say, must depend entirely upon the rules of the Society. In the abstract we are of opinion that pigs dropped any time after the first of January would have a right to exhibit as spring pigs till the following autumn. At the Provincial Show prizes are offered for pigs over a year old and for those under a year old, and any pig short of 12 months actual age can be exhibited in the younger class. —ED.]

Agricultural Intelligence.

EXTRAORDINARY YIELD.—The Kincardine *Commonwealth* thinks that the extraordinary yield of the season will be found to be that of 365 bushels of wheat taken from $7\frac{1}{4}$ acres on the farm of Mr. Kehoe on the Durham road six miles from the Village of Kincardine. The above is the number of bushels as measured by the separating machine, and after being put through the fanners and cleaned for the market. Exclusive of all waste there was fully 49 bushels to the acre.

THE EXHIBITION

AT HAMILTON, SEPTEMBER 18 TO 21, 1860.

(Reported by Mr. William O'Brien.)

[Continued from page 543.]

GALLOWAYS.

With more apparent reason than the Ayrshires the Galloway cattle are rapidly increasing in the country. It is but a very few years since the first animal of the kind was imported, and now, at every exhibition, we find them in larger numbers, and more widely spread over the country. The show this year was exceedingly good, and the hardy thrifty look of the animals exhibited spoke volumes in their favor. Messrs. Roddick, Jardine, and Fleming are the principal breeders, but there are many other farmers who are laying the foundations of very fine herds. Breeders of Galloways claim to find in them the size and weight of the shorthorn with the hardihood of the Devon, and certainly if they accomplish this end nothing better can be required for the country. We have heard it stated that the first cross of the Galloway with the common cattle is not a successful one, which is a matter which those who are in favor of this breed should make a point of setting at rest. We apprehend, judging from present appearances, that the Galloways are likely before long to take the next place to the shorthorns.

FAT CATTLE AND WORKING OXEN.

The show of fat cattle was a fine one, more than the usual number of first class animals being exhibited, though we saw nothing approaching to monstrosity, as is too often the case. William Elliott of Kingston, and J. & J. White of Trafalgar, took the first prizes for the best cow and ox respectively, and Mr. Thomas Smith of Etobicoke showed three splendid cows, two of which took the second and third prizes.

The show of working oxen was not very large, and we should doubt the capacity of some of those exhibited to do any great amount of work. One yoke in particular was an exceedingly fine one, shown by Mr. Dochstader of Oneida, but they were far too heavy for the yoke, and were certainly much more in order for the slaughter-house than for a logging-field. It is absurd to show as working oxen animals which would have enough to do to carry their own weight, and which would be utterly useless either in the bush or in the field.

SHEEP—LEICESTERS AND COTSWOLDS.

We have mentioned these two breeds together, not because there is any affinity between them, but because they have become so mixed up together by frequent crossing that it requires a practised eye to discriminate between them. The pure Leicester has been crossed with the Cotswold, or some other long-woolled breed, until he has lost his distinctive characteristics, and has become an immense animal fully equalling the Cotswold in size, and if anything rather coarser in appearance But, as the classes stood, it cannot be denied that the Leicesters as such made a magnificent display, which was only equalled by that of the Cotswolds. The former were the most numerous, but the latter gave the idea of being better bred sheep of their kind. John Snell of Chinguacousy, George Miller of Markham, John Miller of Pickering and C. Walker of London, were the principal exhibiters of Leicesters. The names of the three first are those of well-known sheep-breeders, the latter is a more recent competitor, though on this occasion a very successful one.

Of Cotswolds Mr. Stone is confessedly the first breeder in the Province, and those who compete with him have generally commenced their flocks by purchases from his. Thus Mr. Snell, who has now, besides his Leicesters and other long-woolled varieties, a very fine collection of Cotswolds, formed it chiefly in this way, and Mr. George Miller's ram, which gained the first prize for two-shears was also bred by Mr. Stone. And not content with his present flock, Mr. Stone has this year imported no less than fifty fresh ewes and one ram, which did not make their appearance upon the show ground at all. Such proofs of enterprise deserve to be recorded. Of the other long-woolled varieties we cannot speak with any degree of particularity. They comprised, however, some exceedingly fine animals, very little differing to an unpractised eye from Cotswolds or improved Leicesters. Messrs. George and John Miller, John Snell, and James Cowan of Waterloo, were the principal competitors.

CHEVIOTS.

We did not notice any great increase in the number of competitors in this class.

The Cheviot is a useful and hardy breed, well suited to the poorer class of farms, with plenty both of mutton and wool. The prizes were all divided between James Dickson of Clarke, Thomas Guy of Whitby, and David Elliott of West Flamboro'.

SOUTHDOWNS.

The want of a class for the exhibition of Hampshire Downs, of which several have been brought into the country lately, has been the cause of some confusion among the black faces. On this occasion Hampshire Downs and Southdowns were shown together indiscriminately, as well as various animals cross-bred between the two, and consequently the judges were sadly puzzled whether to award the prizes to the genuine Southdown or to their larger but less perfect cousins from Hampshire. It will probably be expedient for the future to establish a class in which Hampshire Downs, or others besides pure Southdowns, may be shown together, or else have the class simply for Down Sheep. If either of these is not done, the judges, to do their duty rightly, will be compelled to throw out of the question all but Southdowns proper, for it is clearly absurd to allow breeds differing so entirely as do the different sorts of Down Sheep, to compete together under the common name of Southdowns, simply because they all have short wool and black faces.

Taking, however, both classes together as they were shown, we found a great increase over any former year. The Messrs. Spencer of Whitby had, as usual, a large flock, including both Hampshire Down and Southdown. Kerr of Stamford and Jones of the same township had some very nice Southdowns, and F. W. Stone of Guelph entered two pens of ewes exceedingly well bred. James Dickie of North Dumfries also displayed a lot of valuable animals apparently very well bred. An extra prize was awarded to Mr. O'Brien of the township of Oro for a very fine imported Hampshire Down ram. Besides those that we have mentioned, who are regular breeders of this class, there were several other competitors whose names appear in the prize list, but who are better known in connection with other breeds.

MERINOS AND SAXONS.

All animals of these two breeds are so decidedly foreign in their appearance, and differ so essentially from what we are generally accustomed to regard as useful and valuable sheep, that we look upon them rather as curiosities than anything else, and few are really qualified to give an impartial opinion respecting them. Those, however, who breed them are very positive as to the profit to be derived from their wool, and they certainly appear to be on the increase in this country. On this occasion they were very well represented.

PIGS—LARGE AND SMALL BREEDS.

For the names of the principal competitors in the show of pigs we must refer to the prize list. From the brief examination which we were able to make, the show of these animals appeared to be fully equal to that of any previous year. There was every variety of size and breed, from the largest Yorkshire down to the smallest Suffolk. The improved Berkshire appear to be a favorite breed, and were well represented. We may indeed remark generally that the smaller and finer breeds are supplanting the larger and coarser in popular estimation.

POULTRY.

As we have had the pleasure of remarking with regard to almost everything else, the show of poultry at Hamilton was altogether in advance of any previous one. Every imaginable variety of fowl, from the largest turkey to the smallest game chicken, was to be found there, and fancy pigeons and other toys of that kind were also in great abundance.

MANUFACTURES.

Having now gone through all those articles which are the growth of the soil, or which are fed upon its productions, and equally tend to make up the farmer's profit, we must now take up those which come under the head of manufactures, in many of which the agriculturist is more or less interested; and as first in importance to the generality of our readers we shall take up

AGRICULTURAL IMPLEMENTS.

It is not very long since a plough, a harrow, a scythe, a flail and a fanning mill, formed the whole stock of implements which our farmers thought of possessing, and if their ambition did extend to anything more elaborate, they were obliged to obtain it from Rochester or some other town in the United States. With an improved state of husbandry, however, a different class of im-

plements soon became a matter of necessity. Large crops could no longer be threshed by hand, and it was soon after found that with the scarcity of labor which prevailed it was also a difficult thing to harvest them in the old way. Threshing machines first came in and took the place of the flail, and by degrees mowers and reapers of various patterns have supplanted the scythe and the cradle. With the increased cultivation of root crops on old lands, the cultivator, drill, and horse hoe were found to be indispensable, and by degrees subsoil and even draining ploughs have been added to the list. The progress which has been made in these respects in the last few years can perhaps be better arrived at by the increased variety and improved quality of the implements used than by any other means; and as the demand for these implements increased, it was soon found that it would pay to *make* them here as well as to *use* them, and so great has the supply become from home manufactures that an American-made machine is now as great a rarity as a Canadian one was a few years ago. The American implement-makers, indeed, who used to throng our shows a few years ago, are now quite driven out of the field, and at Hamilton we did not perceive, among a very large show of implements, a single one from the other side of the line; and not only was this the case, but in the implements made by our own people a marked improvement was visible. Common ploughs were much as usual. Indeed they may be said to have reached the highest degree of perfection, both in point of shape and mechanical finish of which they are capable. But besides them we noticed several new patterns of subsoil ploughs, double-mould board ploughs, and draining ploughs, which we should judge to be improvements upon anything exhibited heretofore. Of double-mould-board ploughs there was a great variety, and all apparently capable of doing neat work. Of iron harrows there was a large collection, but of threshing machines and reaping and mowing machines not so many as we have seen on former occasions. One of the greatest desideratums in the way of implements has hitherto been a good straw-cutter, all those made in this country having been very useless, flimsy machines, totally inadequate to doing anything like the amount of work now required of them. On the Hamilton show ground, however, we noticed one or two made after English patterns which promised to fill the vacancy. They are made by Lutz, Cook & Co. of Galt, are capable of being worked by horse-power, and are substantial and workmanlike in appearance. In cultivators and horse-hoes we noticed a very great improvement. Formerly they were either very rude and clumsy in appearance, or else too light and flimsy. What we saw on this occasion were both neat and well-finished as well as substantial, and were altogether very superior articles. The same remark would apply to the turnip and grain drills, of which there were several specimens, decided improvements on what we have seen before. It is, indeed, a good sign to find that our mechanics are so ready at providing the farmer with the better class of implements which an improving system of husbandry is constantly requiring.

DOMESTIC MANUFACTURES.

Returning now to the inside of the building we find a variety of articles more or less interesting to the farming community, either as among those which they require for the purposes of their calling, or in the manufacture of which they can engage directly or indirectly. Of these the most important are, perhaps, manufactures of wool and flax, of which there were at Hamilton some fine collections both factory and home-made. The cloths from the Ontario Mills at Cobourg were very fine and in great variety, numbering no less than twenty-one samples of different textures, from strong Canadian grey to a cloth equal to the finest West of England. Near this collection we perceived another of woollen hosiery of all kinds, from the establishment of Messrs. Hodgins & Anderson of Galt, of most excellent quality, and comprising all kinds from the coarsest to the finest. Next to these was a splendid assortment of woollen yarns, and some excellent shawls of home-manufacture, which it would be hard to distinguish from the best factory made goods. On the same shelf Mr. Daniel Campbell, of Glengarry, had a collection of home-made goods of which anybody might be proud. It contained both woollen and linen goods, with some fine specimens of the raw material. Among the rest we particularly noticed some capital shawls, counterpanes, blankets and flannel, linen bags and linen sheetings, flax yarn and linen thread, &c. Altogether this collection was a most creditable one. In

another place we found some capital carpets of Canadian manufacture, apparently very strong and durable. Some fine specimens of woollen cloth, flannels, and satinets, made by Disher & Haight of Grantham; mixed woollen and cotton socks and hosiery, factory made, by J. G. Crane of Ancaster, and also a number of minor articles of the same description by different makers, the whole forming a collection which speaks highly for the manufacturing resources of the country.

Of hemp and flax, both raw and dressed, there were some very fine samples which proved beyond all question how well the soil and climate of this country are adapted to the cultivation of this valuable production.

POTTERY.

In the various articles made from potters' clay, from the largest and coarsest draining tiles or water pipes to elegant vases, we found a very decided improvement over former years. Not only were the exhibiters more numerous, but their manufactures embraced a larger field, and displayed more skill and taste in the execution than formerly. There were several assortments of pottery, of an excellent and very complete character, among which we particularly noticed those of Messrs. Goold & Co., of Brantford, John Marlatt of Paris, and John Brown of Yorkville. Mr. Lea, of the Don Mills Pottery, had a very large collection of tiles, which are, we believe, generally considered among the best in the country. Mr. Nightingale, of Yorkville, had also a collection of tiles. Joseph Brown, of Yorkville, had, besides a number of excellent articles of a plain and useful character, including an assortment of tiles, a large collection of clays from different parts of the country, both in the raw condition and also made up into flower pots and vases of an ornamental character; some of the flower pots of his manufacture were exceedingly neat. W. & R. Campbell, of Hamilton, had a lot of the best milk-pans we have ever seen, besides filters, tiles, and large sewerage pipes.

HARNESS, LEATHER, ETC.

The display of harness struck us as being very inferior indeed, both as regards quantity and quality. Very few sets were exhibited, and they were all of the gimcrack style, very much decorated, but anything but handsome. There were a few good saddles, however, and the show of leather, unmanufactured, was tolerably good.

IRONWARE.

The show of cutlery and implements of iron and steel was not so good as we should have expected. There was a fine assortment of edge tools from Ottawa, and some few from Galt, but nothing better than we have often seen at previous exhibitions.

The principal attraction in this part of the show was a new reversing gear for a locomotive from the shops of the Great Western Railway, which was, indeed, a finished piece of workmanship, and which could scarcely be excelled in any part of the world. The same company showed also specimens of wrought iron wheels for locomotives, made altogether of scrap iron, which are, we believe, quite a novelty in their way. Gartshore of Dundas had also some fine specimens of millwork, smut machines, &c., for the manufacture of which this firm is already so well known.

MISCELLANEOUS.

In addition to the articles which we have already mentioned, all of which have more or less connection with agricultural pursuits, there was in the main building an immense variety of a miscellaneous character which we have not space to describe with any degree of minuteness, and in which the general mass of our readers are not sufficiently interested to justify our doing so. Among them there were, however, some of great importance, as showing the progress which the country is making in various manufacturing arts—a subject in which none are more deeply interested than the tillers of the soil, inasmuch as it is only by the growth of home manufactures that a steady market for many of the articles which he can profitably raise can be secured. We have much satisfaction, therefore, in alluding to the collections of home-made soap of which there were several very fine samples—of biscuits, also home-made, in every variety, and which are now entirely superseding the use of any others—of brushes, of various kinds and different qualities—of varnishes—of cabinet-ware, an article in which our manufacturers need fear no competition—of musical instruments—of all kinds of clothing and various articles used therein which are now produced in the country, instead of being, as formerly, imported from abroad. Such a list, however, to be com-

plete, would embrace almost every article of common use for which we have the raw material in the country, or which we can obtain from abroad, on such terms as to allow a profit upon its manufacture.

DAIRY PRODUCE—HONEY, ETC.

The show of butter and cheese did not display that superiority over the Kingston exhibition which was perceptible in many other articles. It rather tended to convince us that while the farmers of the Western counties undoubtedly excel in the raising of grain and the breeding of cattle, there are many respects in which they are outdone by their Eastern brethren, and certainly that would appear to be the case as regards the very important item of butter, of which the show at Kingston was exceedingly fine Still, however, both in point of quantity and quality, the display was very creditable. Of cheese there were some very fine samples of different qualities, quite enough to make it a matter of great regret, that while we have such great capabilities of producing an article of such extensive consumption, we are almost entirely dependent for our supply upon foreign makers.

Nothing could be better than the honey, of which there were several specimens, both clear and in the comb, equal to any that could be produced in any part of the world.

FINE ARTS, ETC.

In the limited space to which our remarks have been necessarily confined, it has been obviously impossible to enter very fully into details respecting every article which was exhibited, and into the departments not connected with agricultural pursuits we have not thought it advisable to intrude. Of the miscellaneous collection which comes under the heads of fine arts, or ladies' work, we can therefore only say that it presented the usual features of interest, and that many of the articles shown displayed a wonderful degree of taste and ingenuity. In the present position of this country, however, we cannot look for any very high degree of attainment in art, properly so called, and it may, perhaps, be questionable whether, in displays of this sort, much encouragement is really given to it. Indeed, the magnitude to which the Provincial Exhibitions are annually growing clearly indicates that before many years elapse some division will be necessarily resorted to, and all that pertains to art will take its proper place apart from either agricultural or mechanical productions. In the meantime, until this necessity arises, all the varied creations of fancy and ingenuity add much to the general attractions of the show, and perhaps cause many to become alive to the magnitude of our material resources who would otherwise remain in ignorance of them.

Before concluding, there is one point to which the attention of the Board might properly be directed, and that is, to the number of extras which crowd the entry books. This indulgence is frequently made use of merely to bring into notice something which, it is feared, will not stand the test of too rigid competition, and which, therefore, under the disguise of some trifling peculiarity, is brought in as an extra. Of course where there is scarcely a limit to the variety of the articles which may be exhibited it is impossible to classify everything that may be worthy of exhibition, although we have pointed out one or two instances in which further classification is desirable; but still the use of extra entries may be, and frequently is, extended to an unwarrantable degree.

Of the general management of the Hamilton Exhibition, as well as of the grand success which attended it, we cannot speak in terms of too great commendation. The visit of the Prince of Wales tended, no doubt, very much to produce such splendid results, by stimulating the energies of all to an unusual degree, and it may perhaps be that in consequence of this the show next year will appear poor in comparison. We trust, however, that such will not be the case, but that our farmers and manufacturers, wisely looking to the true end of these expositions of our material progress, will not allow even the appearance of a falling off in our industrial advancement. Let those who won this year look well to their laurels, for they have many pushing rivals starting in the race who cannot easily be distanced. Fresh breeders and fresh manufacturers are constantly coming into the field, commencing with the knowledge which has been gained by the long experience of their predecessors, and prepared to extend that knowledge still further by their own investigations. A wide range is, however, happily open to all, and there is still abundant room for improvement, and a field in which all who are worthy of reward may be certain of gaining it according to their merits.

List of Prizes awarded.

PROVINCIAL EXHIBITION, HAMILTON, SEPT. 18 to 21, 1860.

HORSES.

CLASS I.—BLOOD HORSES.—(26 Entries.)

Judges—Messrs. W. S. Light, Woodstock; Captain Tyrwhitt, Bradford; G. W. Foott, Chatham; A. Greeley, Prince Edward Co.

Best thorough-bred stallion, 4 years old and upwards, Dr. Morton, Bradford, "Antonio," imported from England, 1860, $120; 2d do, Geo. J. Grange, Guelph, "Charon," $25; 3d do, John Dew, York Township, "Sir Tatton Sykes," $12; 4th do, Thomas Downing, Oshawa, $9.

Best thorough-bred 2 years old stallion, Alexander Young, Barton, 3d prize, $6.

Best thorough-bred yearling colt, G. J. Grange, Guelph, $8; 3d do, J. & J. White, Trafalgar, $4.

Best thorough-bred stallion of any age, Gold Medal, Dr. Morton, Bradford, "Antonio," $40.

Best thorough-bred 3 years old filly, S. Peters, Senr., London, 2d prize, "Lucy Dashwood," $12.

Best thorough-bred yearling filly, George Palmer, Guelph, $10; 2d do, J. & J. White, Trafalgar, $6.

Best thorough-bred mare and foal, George Palmer, Guelph, $22; 2d do, J. & J. White, Trafalgar, $14.

EXTRA ENTRIES—George J. Grange, Guelph, blood mare, "Our Nell," $20.

CLASS II.—AGRICULTURAL HORSES.—(128 Entries.)

Judges—Messrs. Andrew Frazer, Napanee; J. Dickenson, Port Hope; Michael Dixon, Tullamore; Geo. Stanton, St. George; John Hunter, Goderich.

Best stallion for agricultural or general purposes, 4 years old and upwards, Thomas Gowland, Seneca, $40; 2d do, Joseph Johnson, Burford, $25; 3d do, James Bell, Weston, $12; 4th do, Robert Stephens, Streetsville, $9.

Best 3 years old stallion, John Hartley, Nelson, $22; 2d do, J. & J. Watson, Malton, $14; 3d do, Joseph Johnson, Burford, $8; 4th do, James Railton, Caistor, $4.

Best 2 years old stallion, Thomas Donkin, Tecumseth, $14; 2d do, Arch. Frank, Caledon, $10; 3d do, R. A. Hartley, Chinguacousy, $6; 4th do, A. Jeffrey, Vaughan, $3.

Best yearling colt, Thomas Davis, Saltfleet, $8; 2d do, Mark Laidman, Binbrook, $6; 3d do, John Large, Flamborough East, $4.

Best agricultural or general purpose stallion of any age, Thomas Gowland, Seneca, Gold Medal, value $40.

Best 3 years old filly, Robert Inksetter, Beverly, $18; 2d do, George Abrey, E. Flamborough, $12; 3d do, Wm. Carey, W. Flamborough, $8; 4th do, Robert Forbes, Puslinch, $4.

Best 2 years old filly, Joseph Boyle, Flamborough, $14; 2d do, A. Gerrie, Ancaster, $9; 3d do, A. Marshall, Ryckman's Corners, $5; 4th do, J. G. Teneyck, Binbrook, $3.

Best yearling filly, George Alton, Nelson, $8; 2d do, J. R. McMicken, Stamford, $6; 3d do, John G. Teneyck, Binbrook, $4; 4th do, John J. Bigelow, E. Flamborough, $3.

Best brood mare and foal, or evidence that the foal has been lost, Thos. Armstrong, Vaughan, $22; 2d do, P. Hughes, Puslinch, $14; 3d do, A. Gerrie, Ancaster, $7; 4th do, James Ferris, Beverly, $4.

Best pair matched farm or team horses, Charles Lamb, Walpole, $20; 2nd do, A. Jeffrey, Vaughan, $15; 3d do, John Reid, Onondaga, $10; 4th do, Hendrie & Co., Hamilton, $5.

EXTRA—Three year gelding colt, Wm. O. Telfer, London Township, recommended, $2.

CLASS III.—ROAD OR CARRIAGE HORSES. (188 Entries.)

Judges—Messrs. Jacob Young, Seneca; Job Aylsworth, Newburgh; James Armstrong, Elgin; N. H. Pauling, Port Dalhousie.

Best roadster or carriage stallion, 4 years old and upwards, G. Smith, York Township, $40; 2nd do, Thomas Blanchard, Nelson, $25; 3rd do, J. Dickson, Etobicoke, $12; 4th do, Robert Beith, Darlington, $9.

Best do, 3 years old, H. Macartney, Trafalgar, $22; 2nd do, W. Hornby, Toronto Township, $14; 3rd do, R. Warren, Niagara $8; 4th do, R. M. Wilson, Ancaster, $4.

Best do, 2 years old, Joseph Rymal, Barton, $14; 2nd do, Hendershot & Wilkinson, Ancaster, $10.

Best yearling colt, Leonard Salmon, Binbrook, $8.

Best stallion of any age, G. Smith, York Township, gold medal, value $40.

Best 3 years old filly, W. Wilson, Etobicoke, $18; 2d do, T. Longs, Townsend, $12; 3rd do, J. R. Pettitt, Grimsby, $8; 4th do, A. Dittrick, Grantham, $4.

Best yearling filly, T. Smith, Toronto Township, $8; 2d do, S. A. Sovereign, South Dumfries, $6; 3rd do, S. A. Sovereign, S. Dumfries, $4; 4th do, J. G. Teneyck, Binbrook, $3.

Best brood mare and foal, or, &c, S. A. Sovereign, $22; 2d do, H. Inglehart, Nelson, $14; 3rd do, W. Peers, Oxford, $7; 4th do, S. A. Sovereign, S. Dumfries, $4.

Best pair matched carriage horses, John Coote, London, $20; 2d do, H. P. Zimmerman, Nelson, $15; 3d do, J. Gage, Barton, $10; 4th do, S. Anderson, East Flamboro', $5.

Best single carriage horse in harness, J. Dedrick, Walsingham, $10; 2d do, S. Burgess, Woodstock, $8; 3d do, P. Grant, Hamilton, $6; 4th do, T. S. Mason, Trafalgar, $4.

Best saddle horse, A. Stewart, Hamilton, $10; 2d do, A. Burrows, Rowan Mills, $8; 3d do, J. Combe, Saltfleet, $6; 4th do, W. P. Maclaren, Hamilton, $4.

CLASS IV.—HEAVY DRAUGHT HORSES.
(49 Entries.)

Judges—Joseph Salkeld, Stratford; James Morden, Dundas; G. S. Burrill, Cramahe; Mattaniah Kerr, Hungerford.

Best heavy draught stallion, W. Crawford, Scarboro, $40; 2d do, A. Harvie, Beverley, $25; 3d do, John Sanderson, Markham, $12; 4th do, T. Dalziel, Beverley, $9.

Best 3 years old stallion, J. Thompson, Markham, $22; 2d do, J. Brownridge, Esquesing, $14.

Best 2 years old stallion, A. Harvin, Beverley, $14.

Best yearling colt, J. Ferris, Beverley, $8.

Best draught stallion of any age, W. Crawford, Scarboro, Gold Medal, value $40.

Best 3 years old filly, T. Smith, Toronto, $18; 2d do, J. Ferris, Beverley, $12.

Best 2 years old filly, J. Ferris, Beverley, $14.

Best yearling filly, G. Miller, Markham, $8; 2d do, R. Young, Beverley, $6.

Best brood mare and foal, or evidence that the foal has been lost, G. Miller, Markham, $22; 2d do, P. Grant, Hamilton, $14; 3d do, G. Alton, Nelson, $7.

Best span of draught horses, A. McNaughton, Newcastle, $20; 2d do, Hendrie & Co., Hamilton, $15; 3d do, Hendrie & Co., Hamilton, $10.

REMARKS OF JUDGES.—In the section of stallions in this class the judges have great pleasure in speaking in the highest terms of the horses brought under their notice, as the numbers and quality both bespeak a marked improvement upon previous exhibitions. The other sections are not so well represented. In speaking of the class generally the judges would wish to be understood as having felt satisfaction in the qualities of the animals shown, and only feel sorry that they had not a larger number to have selected from.

CLASS V.—HORSES OF ALL CLASSES.
(52 Entries.)

Judges—The judges on all the other classes of Horses combined.

Best stallion of any age or blood, G. Smith, York Township, $100.

CATTLE.

CLASS VI.—DURHAMS.—(143 Entries.)

Judges—Messrs. Thomas A. Milne, Markham; John Smith, Elora; D. W. Freeman, Simcoe; Adam L. Argo, Fergus; John Ker, Drummondville; George Fanning, Belleville.

Best bull 4 years old and upwards, S. Tyrwhitt, West Gwillimbury, "Dairyman," $36; 2d do, I. Fares, Humberstone, "Sam Slick," $28; 3d do, W. A. Cooley, Ancaster, "Jno. O'Gaunt 2d," $20; 4th do, J. Bellwood, jr., Newcastle, "London Lad," $10.

Best 3 years old bull, W. Armstrong, Markham, "Young Tweedside," $32; 2d do, F. W. Stone, Guelph, "Third Grand Duke," $24; 3d do, J. K. Taylor, Guelph, "Wolviston 1st," $16; 4th do, G. Cooper, Davenport, "Young Emperor," $8.

Best 2 year old bull, G. Miller, Markham, "Kirtleside," $25; 2d do, J. White, Trafalgar, "Milton," $18; 3d do, J. P. Wheler, Scarboro, "President," $12; 4th do, Thos. Hatt, Dundas, "Prince Arthur," $6.

Best 1 year old bull, John Snell, Chinguacousy, "Cobden," $20; 2d do, J. R. Pettitt, Grimsby, "Alfred," $15; 3d do, James S. Smith, McGillivray, $10; 4th do, W. Alcorn, Port Hope, "Duke of Roxburgh," $5.

Best bull calf (under 1 year), F. W. Stone, Guelph, $16; 2d do, F. W. Stone,

$12; 3d do, J. Snell, Chinguacousy, $8; 4th do, John Miller, Pickering, $4.

Best bull of any age, George Miller, Markham, gold medal, value $40.

Best cow, W. A. Cooley, Ancaster, "Red Rose 3rd," $30; 2d do, S. Moffatt, Galt, "Dutchess," $15; 3rd do, F. W. Stone, Guelph, "Desdemona," $10; 4th do, John Wade, Port Hope, "Adaline 2d," $5.

Best 3 years old cow, F. W. Stone, Guelph, "Miss Margaret," $16; 2d do, J. P. Wheler, Scarboro, "Strawberry," $12; 3d do, Edward Jones, Stamford, "Jenny Lind," $8.

Best 2 years old heifer, S. Hodgskin, Guelph Township, "Snowdrop," $12; 2nd do, G. W. Miller, Grantham, "Beauty," $9; 3d do, T. Smith, East Flamboro', "Daisy," $6; 4th do, G. Miller, Markham, $4.

Best 1 year old heifer, S. Hodgskin, Guelph, "Gazelle," $10; 2d do, G Miller, Markham, "Diadem," $7; 3d do, E. Jones, Stamford, $5; 4th do, J. Davis, Saltfleet, "Minna," $3.

Best heifer calf (under one year) F. W. Stone, Guelph, $6; 2d do, T. Smith, East Flamboro, $4; 3rd do, R. B. Ireland, Nelson, $3; 4th do, J. P. Wheler, Scarboro, $2.

Best herd of Durhams, consisting of one bull and not less than four females, cows or heifers, or both, of any age, F. W. Stone, Guelph, $60.

EXTRAS.—Sampson Baker, Charlotteville, herd of eight improved Gloucester grade cattle, being a cross upon the Durhams, $40. The judges remark that these animals were very good, and nearly pure Durham, being stock recently imported from England and their descendants, but not having a sufficient pedigree to entitle them to appear in the pure bred class, they should have entered amongst the grades

CLASS VII.—DEVONS.—(172 Entries.)

Judges—Messrs. Matthew Jones, Darlington; James E McKinley, George Ghent, Wellington Square; James Pile, Whitby; Dr Morton, Bradford.

Best bull 4 years old and upwards, J. Davey, Clarke, "Lord John Russell," $36; 2nd do, W H. Lock, Yarmouth, $28; 3 do, W. Scott, New Hamburgh, "Fordham $20; 4th do, W. H. Lock, Yarmouth, $10

Best 3 years old bull, A. Ferrie, Waterloo, "Young William," $32; 2d do, J. Allen, Whitby, $25; 3d do, H. D. Smith Aldboro', $15; 4th do, J. Malcolm, Scarboro' "Prince of Wales," $8.

Best 2 years old bull, C. Courtice, Darlington, "Duke of Darlington," $25; 2d do, W. H Lock, Yarmouth, $18; 3d do, G. & J. C. Rykert, St. Catharines, "Havelock," $12; 4th do, W. H. Lock, Yarmouth, $6.

Best 1 year old bull, J. Moore, Etobicoke, "Duke," $20; 2d do, W. H. Lock, Yarmouth, $15; 3rd do, G. & J. C. Rykert, St Catherines, $10; 4th do, Daniel Tye, Wilmot, $5.

Best bull calf (under 1 year), C. Courtice, Darlington, $16: 2d do, J. Spencer, Whitby, $12; 3d do, W. H. Lock, Yarmouth, $8; 4th do, A. Ferrie, Doon, Waterloo, $4.

Best bull of any age, J. Davey, Clarke, gold medal, value $40.

Best cow, W. H. Lock, Yarmouth, $30; 2d do, C. Courtice, Darlington, $15; 3d do, W. H. Lock, Yarmouth, $10; 4th do, do $5.

Best 3 years old cow, W. H. Lock, Yarmouth, $16; 2d do, A. Ferrie, Waterloo, $12; 3d do, do, $8; 4th do, D. Tye, Wilmot, $5.

Best 2 years old heifer, C. Courtice, Darlington, $12; 2d do, A. Ferrie, Waterloo, $9; 3d do, D. Tye, Wilmot, $6; 4th do, R. Coates, Oakville, $4.

Best 1 year old heifer, W. H. Lock, Yarmouth, $10; 2d do, A. Ferrie, Waterloo, $7; 3d do, W. H. Lock, Yarmouth, $5; 4th do, A. Ferrie, Waterloo, $3.

Best heifer calf (under 1 year), J. Spencer, Whitby, imported from England 1860, $12; 2d do, W. H. Lock, $4; 3d do, A. Ferrie, $3; 4th do, W. H. Lock, $2.

Best Herd of Durhams, consisting of one bull and not less than four cows and heifers, of any age, W. H. Lock, Yarmouth, $60.

CLASS VIII.—HEREFORDS.—(19 Entries.)

Judges—Messrs. Henry Battell, Haldimand Township; Milo Parks, Napanee; Wm. Withers, Kincardine; Alex. McDonald, Cobourg.

Best bull 4 years old and upwards, J. R. McMicken, Stamford, $36; 2d do, Charles Skene, Amherst Island, $28.

Best 1 year old bull, Chas. Skene, Amherst Island, $20.

Best bull calf (under 1 year) J. R. McMicken, Stamford, $16.

Best bull of any age, J. R McMicken, Stamford, gold medal, value $40

Best cow, J. R. McMicken, Stamford, $30. 2d do, Chas Skene, Amherst Island, $15; 3d do, do, $10; 4th do, do, $5.

Best 4 years old cow, J. R. McMicken,

Stamford, $16; 2d do, J. R. McMicken, $12.

Best 2 years old heifer, J. R. McMicken, Stamford, $12; 2d do, Charles Skene, Amherst Island, $9.

Best 1 year old heifer, J. R. McMicken, Stamford, $10.

Best heifer calf (under 1 year) J. R. McMicken, $6; 2d do, Chas. Skene, $4.

Best Herd of Durhams, consisting of one bull and not less than four cows and heifers, of any age, J. R. McMicken, Stamford, $60.

CLASS IX.—AYRSHIRES.—(63 Entries.)

Judges—The same as for Heresfords.

Best bull 4 years old and upwards, James Nimmo, Camden, $36; 2d do, J. K. Markle, West Flamboro', $28; 3rd do, John Valens, Beverley, $20; 4th do, R. L. Denison, Toronto, $10.

Best 3 years old bull, P. R. Wright, Cobourg, $32; 2d do, R. L. Denison, Toronto, $24.

Best 2 years old bull, P. Dixon, Binbrook, $25; 2d do, Wm. Carey, West Flamboro', $18; 3d do, Thos. Miller, West Flamboro', $12; 4th do, R. L. Denison, Toronto, $6.

Best 1 year old bull, George Morton, Morton, $15; 3d do, R. L. Denison, Toronto, $10; 4th do, Geo. Stanton, Paris, $5.

Best bull calf, under 1 year, P. R. Wright, Cobourg, $16; 2d do, George Morton, Morton, $12; 3d do, R. L. Denison, Toronto, $8; 4th do, P. R. Wright, Cobourg, $4.

Best bull of any age, James Nimmo, Camden, gold medal, value $40.

Best cow, P. R. Wright, Cobourg, $30; 2d do, J. Jardine, Saltfleet, $15; 3d do, P. R. Wright, Cobourg, $10; 4th do, George Stanton, Paris, $5

Best 3 years old cow, P. R. Wright, Cobourg, $16; 2d do, John Weir, West Flamboro', $12; 3d do, R. L. Denison, Toronto, $8; 4th do, do, $5.

Best 2 years old heifer, P. R. Wright, Cobourg, $12; 2d do, John P. Wheler, Scarboro', $9; 3d do, James Nimmo, Camden, $6; 4th do, R. L. Denison, Toronto, $4.

Best 1 year old heifer, P. R. Wright, Cobourg, $10; 2d do, George Morton, Morton, $7; 3d do, J. K. Markle, West Flamboro', $5; 4th do, P. R. Wright, Cobourg, $3.

Best heifer calf (under one year), P. R. Wright, Cobourg, $6; 2d do, George Morton, Morton, $4; 3d do, P. R. Wright, Cobourg, $3; 4th do, R. L. Denison, Toronto, $2.

Best herd of Durhams, consisting of one bull and not less than four cows and heifers, of any age, P. R. Wright, Cobourg, $60.

CLASS X.—GALLOWAY CATTLE.

(56 Entries.)

Judges—Messrs. John Dew, Toronto, Daniel Campbell, Glengarry; Benjamin Philips, Uxbridge.

Best bull, 4 years old and upwards, A. McNeil, Vaughan. $36; 2nd do, John McLean, Clover Hill, Essa, $28; 3d do, Wm. Roddick, Port Hope, $20; 4th do, Roddick & McNaught, Brantford, $10.

Best 2 years old bull, Jos. Jardine, Saltfleet, $32; 2d do, John Fleming, Vaughan, $24; 3d do, John Snell, Chinguacousey, $16; 4th do, Geo. Roddick, Port Hope, $8.

Best 2 years old bull, John Moore, Etobicoke, $25; 2d do, James Nimmo, Camden, $18.

Best 1 year old bull, W. Walker, Saltfleet, $20; 2d do, W. Roddick, Port Hope, $15; 3d do, J. Lyons, Dundas, $10; 4th do, E. W. Thomson, York Township, $5.

Best bull calf (under one year), John Snell, $16; 2d do, J. Cotter, Nelson, $12; 3d do, Jos. Jardine, Saltfleet, $8; 4th do, James Nimmo, Camden, $4.

Best bull of any age, Jos. Jardine, Saltfleet, gold medal, value $40.

Best cow, John Fleming, Vaughan, $30; 2d do, John Moore, Etobicoke, $15; 3d do, Jos. Jardine, Saltfleet, $10; 4th do, John Snell, Chinguacousy, $5.

Best 3 years old cow, W. Roddick, Port Hope, $16.

Best 2 years old heifer, John Fleming, Vaughan, $12.

Best yearling heifer, Joseph Jardine, Saltfleet, $10; 2d do, J. Lyons, Dundas, $7; 3d do, J. Jardine, Saltfleet, $5.

Best heifer calf, A. McNeil, Vaughan, $6; 2d do, Geo. Roddick, Port Hope, $4; 3d do, Wm. Roddick, Port Hope, $3; 4th do, Joseph Jardine, Saltfleet, $2.

Best herd of Galloways, consisting of one bull and not less than 4 cows or heifers, or cows and heifers, Joseph Jardine, Saltfleet, $60.

REMARKS BY JUDGES.—The cows in this class were particularly good, and the Judges had great difficulty in awarding the premiums. The Galloways as a whole are very superior, and an improvement on former years.

CLASS XI.—BULL OF ANY BREED.
(21 Entries.)

Judges—The Committees on all the breeds of cattle, combined.

Best bull of any age or breed, W. Armstrong, Markham, "Young Tweedside," $80.

CLASS XII.—GRADE CATTLE.—(73 Entries.)

Judges—Messrs. Oliver Blake, Simcoe; Charles Taylor, Brantford; Richard Allen, Darlington.

Best cow, S. Hodgskin, Guelph, $20; 2d do, C. Edmonstone, Brantford, $15; 3d do, S. Hodgskin, Guelph, $10; 4th do, E. Macdonald, Guelph, $5.

Best 4 years old grade cow, T. Alton, Nelson, $20; 2d do, S. Hodgskin, Guelph, $15; 3d do, J. Gage, Barton, $10; 4th do, J. Smith, West Flamboro, $5.

Best 3 years old cow, J. Smith, West Flamboro, $16 dol; 2d do, P. Hughes, Puslinch, $12; 3d do, I. H. Anderson, West Flamboro, $8.

Best 2 years old heifer, P. Hughes, Puslinch, $12; 2d do, J. Roberston, St. Marys, $9; 3d, do, T. Alton, Nelson, $6; 4th do, J. Smith, West Flamboro, $4.

Best 1 year old heifer, J. Smith, West Flamboro, $10; 2d do, W. Wilson, Etobicoke, $7.

Best heifer calf (under 1 year) C. Edmonstone, Brantford, $6; 2d do, W. Tait, Ancaster, $4; 3d do, S. Hodgskin, Guelph, $3; 4th do, I. H. Anderson, West Flamboro, $2.

CLASS XIII.—FAT AND WORKING CATTLE, ANY BREED.—58 Entries.

Judges—Messrs. Philip Armstrong, Toronto; George Robson, London; Robert Peirson, Woodstock; John Wilmot, Kingston; Robert Best, Niagara.

Best fat ox or steer, J. and J. White, Trafalgar, $30; 2d do, J. O'Rorke, East Hope, $20; 3d do, H. J, Lawry, Hamilton, $13; 4th do, T. Smith, Etobicoke, $7.

Best fat cow or heifer, W. Elliot, Kingston, $30; 2d do, T. Smith, Etobicoke, $20; 3d do, do. do., $13; 4th do, J. O'Rorke, East Hope, $7.

Best yoke of working oxen, H. Dockstader, Oneida, $20; 2d do, W. Tweedle, Saltfleet, $13; 3d do, R. B. Ireland, Nelson, $8; 4th do, Joseph Ireland, Nelson, $4.

Best yoke of 3 years old steers, A. F. Pettitt, Nelson, $16; 2d do, R. Forbes, Puslinch, $10.

EXTRA ENTRIES—Yoke four years old twin steers, J. Baker, East Flamboro, recommended, $16.

SHEEP.

CLASS XIV.—LEICESTERS.—176 Entries.

Judges—Messrs. James R. Ireland, West Flamboro; Dugald Fergusson, Sarnia; Robert Spears, Uxbridge; Henry Fulton, Eramosa; John Ness, Grimsby; James Laurie, St. Catherines; Robert Wickett, Seneca.

Best ram, two shears and over, John Snell, Chinguacousey, $16; 2d do, John Miller, Pickring, $10; 3d do, C. Walker London, $5; 4th do, D. Rowndtree, York Township, $3.

Best shearling ram, John Snell, Chinguacousey, $16; 2d do, George Miller, Markham, $10; 3d do, John Snell, Chinguacousey, $5; 4th do, D. Alton, Nelson, $3.

Best ram lamb, W. L. Ewing, Brantford, $7; 2d do, John Snell, Chinguacousey, $4; 3d do, Charles Walker, London, $3; 4th do, Charles Walker, London, $2.

Best 2 ewes, two shears and overs, Charles Walker, London, $16; 2d do, John Miller, Pickering, $12; 3d do, John Snell, Chinguacousey, $6; 2th do, George Miller, Markham, $4.

Best 2 shearling ewes, C. Walker, London, $12; 2d do, G. Miller, Markham, $8; 3d do, C. Walker, London, $4; 4th do, John Snell, Chinguacousey, $3.

Best 2 ewe lambs, C. Walker, London, $6; 2d do, C. Walker, London, $4; 3d do, Walker Unwin, Blanchard, $2; 4th do, John Miller, Pickering, $1.

CLASS XV.—COTSWOLDS.—(68 Entries.)

Judges—Messrs. John Foott, Port Hope; Thomas Smith, Nelson; Trueman McEvers, Cobourg.

Best ram, two shears and over, George Miller, Markham, $16; 2d do, F. W. Stone, Guelph, $10; 3d do, F. W. Stone, Guelph, $5; 4th do, F. W. Stone, Guelph, $3.

Best shearling ram, F. W. Stone, Guelph, $16; 2d do, John Snell, Chinguacousey, $10; 3d do, F. W. Stone, Guelph, $5; 4th do. John Snell, Chinguacousey, $3.

Best ram lamb, John Snell, Chinguacousy, $7; 2d do, F. W. Stone, Guelph, $4; 3d do, F. W. Stone, Guelph, $8; 4th do, F. W. Stone, Guelph, $2.

Best two ewes, two shears and over, F.

W. Stone, Guelph, imported from England 1860, $32; 2d do, F. W. Stone, $12; 3d do, John Snell, Chinguacousy, $6; 4th do, W. Unwin, Blanshard, $4.

Best two shearling ewes, F. W. Stone, Guelph, $12; 2d do, F. W. Stone, $8; 3d do, John Snell, Chinguacousy, $4; 4th do, John Snell, Chinguacousy, $3.

Best 2 ewe lambs, F. W. Stone, Guelph, $6; 2d do, John Snell, Chinguacousy, $4; 3d do, John Snell, Chinguacousy, $2; 4th do, F. W. Stone, Guelph, $1.

CLASS XVI.—CHEVIOTS.—(41 Entries.)

Judges—Messrs. James Cowan, Waterloo; Thomas Clare, Hastings; Gideon Leehy, Frankville; John Carter, Markham,

Best ram, two shears and over, James Dickson, Clarke, $16; 2d do, James Dickson, Clarke, $10; 3d do, Thomas Guy, Whitby, $5.

Best shearling ram, James Dickson, Clarke, $16; 2d do, do, do, $10; 3d do, do, do, $5; 4th do, David Elliott, West Flamboro, $3.

Best ram lamb, James Dickson, Clarke, $7; 2d do, David Elliott, West Flamboro, $4; 3d do, do, do, $3; 4th do, Thos. Guy, Whitby, $2.

Best two ewes, two shears and over, James Dickson, Clarke, $16; 2d do, Thomas Guy, Whitby, $12; 3d do, D. Elliott, West Flamboro, $6; 4th do, James Dickson, Clarke, $4.

Best 2 shearling ewes, Thos. Guy, Whitby, $12; 2d do, D. Elliott, West Flamboro, $8; 3d do, James Dickson, Clarke, $4; 4th do, do do, $3.

Best 2 ewe lambs, Thomas Guy, Whitby, $6; 2d do, D. Elliott, West Flamboro, $4; 3d do, D. Elliott, W. Flamboro, $3; 5th do, Thomas Guy, Whitby, $1.

REMARKS BY JUDGES.—Notwithstanding the patronage of the association, we find but few entries in this class, and generally surpassed in both size of carcass and quality of wool by the various grades exhibited among them. We therefore doubt the propriety of the Association giving so many prizes to a class of sheep in our opinion not so well adapted as some others to the wants of this country.

CLASS XVII.—LONG WOOLLED SHEEP, NOT PURE LEICESTERS, COTSWOLDS, OR CHEVIOTS.—(121 Entries.)

Judges—Messrs. Alex. Alcorn, Cobourg; Edward Jones, Stamford; Thomas Grahame, Hastings; John Pratt, Cobourg.

Best ram, two shears and over, Thomas Blanchard, Nelson, $16; 2d do, J. S. Smith, McGillivray, $10; 3d do, J. Cowan, Waterloo, $5; 4th do, John Snell, Chinguacousy, $3.

Best shearling ram, J. S. Smith, McGillivray, $16; 2d do, John Miller, Pickering, $10; 3d do, George Scott, Scarboro', $5; 4th do, Henry Hammond, Brantford, $3.

Best ram lamb, John Miller, Pickering, $7; 2d do, James Cowan, Waterloo, $4; 3d do, John Snell, Chinguacousy, $3; 4th do, James Cowan, Waterloo, $2.

Best 2 ewes, two shears and over, John Miller, Pickering, $16; 2d do, George Miller, Markham, $12; 3d do, John Snell, Chinguacousy, $6; 4th do, John Hamilton, West Flamboro, $4.

Best 2 shearling ewes, John Miller, Pickering, $12; 2d do, John Snell, Chinguacousy, $8; 3d do, John Snell, $4; 4th do, James Cowan, Waterloo, $3.

Best 2 ewe lambs, Thos. Smith, Toronto Township, $6; 2d do, John Miller, Pickering, $4; 3d do, James Cowan, Waterloo, $2; 4th do, W. L. Ewing, Brantford, $1.

CLASS XVIII.—SOUTHDOWNS.
(118 Entries.)

Judges—Messrs. Jno. King, St. Thomas; David Wilson, Chatham; Martin Johnson, Barrie; James Bartlett, Windsor.

Best ram, two shears and over, Thomas A. Milne, Markham, $16; 2d do, James Davidson, South Dumfries, $10; 3d do, Walter Ker, Stamford, $5; 4th do, John Spencer, Whitby, $3.

Best shearling ram, Walter Ker, Stamford, $16; 2d do, Edward Jones, Stamford, $8; 3d do, E. Jones, Stamford, $4; 4th do, James Dickie, North Dumfries, $3.

Best ram lamb, H. J. Losee, Norwich, $7; 2d do, Sampson Baker, Charlotteville, $4; 3d do, G. W. Miller, Grantham, $3; 4th do, James Dickie, North Dumfries, $2.

Best 2 ewes, two shears and over, F. W. Stone, Guelph, $16; 2d do, John Spencer, Whitby, $12; 3d do, John Rantar, Glanford, $6; 4th do, John Spencer, Whitby, $4.

Best 2 shearling ewes, Thos. Lee, North Dumfries, $12; 2d do, F.W. Stone, Guelph, $8; 3d do, John Spencer, Whitby, $4; 4th do, Edward Jones, Stamford, $3.

Best 2 ewe lambs, John Spencer, Whitby, $6; 2d do, N. Bethel, St. Catherines, $4; 3d do, J. Spencer, Whitby, $2; 4th do, do do, $1.

CLASS XIX.—MERINOS AND SAXONS.
(52 Entries.)

Judges—Messrs. Daniel Matthews, Norfolk; Wm. Jenkins, Huron; John Randall, Paris.

Best ram, two shears and over, G. W. Miller, Grantham, $16; 2d do, Peter Lyon, Oakville, $10; 3d do, Jacob Rymal, Barton, $5; 4th do, Jacob Rymal, Barton, $3.

Best shearling ram, G. W. Miller, Grantham, $16; 2nd do, Jacob Rymal, Barton, $10; 3d do, Jacob Rymal, do, $5; 4th do, Alex. Young, Barton, $3.

Best ram lamb, E. Arkland, Oshawa, imported from United States 1860, $14; 2d do, Jacob Rymal, Barton, $4; 3d do, G. W. Miller, Grantham, $3; 4th do, Alex. Young, Barton, $2.

Best two ewes, two shears and over, E Arkland, Oshawa, imported from United States 1860, $24; 2d do, A. Young, Barton, $12; 3d do, Jacob Rymal, Barton, $6; 4th do, G. W. Miller, Grantham, $4.

Best two shearling ewes, E. Arkland, Oshawa, imported from United States, 1860, $18; 2d do, R. Disher, Bertie, $8; 3d do, Alex. Young, Barton, $4; 4th do, Jacob Rymal, Barton, $3.

Best two ewe lambs, E. Arkland, Oshawa, imported from United States, 1860, $9; 2d do, R. Disher, Bertie, $4; 3d do, G. W. Miller, Grantham, $2; 4th do, Jacob Rymal, Barton, $1.

EXTRAS.—Jacob Rymal, Barton, two shearling ewes and two ewe lambs, a cross from the Merino and Leicester, commended; E. G. O'Brien, Oro, Hampshire Down Ram, highly commended, $16.

REMARK.—The Judges in this class do not deem it expedient to recommend any award to the male animals entered as extras, not pure bred, the animals exhibited possessing no merit.

CLASS XX.—RAMS OF ALL BREEDS.
(40 Entries.)

Judges—The Committees on all the other classes of sheep combined.

For the best ram of any long-wooled breed, of any age, George Miller, Markham, silver medal.

For the best ram of any short-wooled breed, any age, John Spencer, Whitby, silver medal.

CLASS XXI.—FAT SHEEP.—(23 Entries.)

Judges—The same as for fat cattle.

Best two fat wethers, John Snell, Chinguacousy, $12; 2nd do, Thos. Smith, Etobicoke, $8; 3d do, D. Rowntree, York Township, $4; 4th do, John Randall, Brantford, $3.

Best two fat ewes, F. W. Stone, Guelph, $12; 2d do, J. Hamilton, West Flamboro, $8; 3d do, P. Skelley, South Dumfries, $4; 4th do, John Snell, Chinguacousy, $3.

PIGS—LARGE BREEDS.

CLASS XXII.—YORKSHIRES—(45 Entries.)

Judges—Messrs. P. R. Palmer, Thurlow; John Baird, Lanark; S. D. Farley, Belleville.

Best boar, one year and over, C. A. Jordison, Thurlow, $15; 2d do, John Malcolm, Scarboro', $10.

Best breeding sow, one year and over, C. A. Jordison, Thurlow, $10; 2d do, N. Bethel, St. Catherines, $7; 3d do, H. J. Lawry, Hamilton, $4.

Best boar, under one year, C. A. Jordison, Thurlow, $10; 2d do, C. A. Jordison, $6; 3d do, H. D. Smith, Aldborough, $4; 4th do, George Savage, Toronto Township, $2.

Best sow, under one year old, C. A. Jordison, Thurlow, $5; 2d do, do do, $4; 3d do, James Maines, Brampton, $3; 4th do, George Savage, Toronto Township, $2.

CLASS XXIII.—LARGE BERKSHIRES.
(19 Entries.)

Judges—The same as for class XXII.

Best boar, one year and over, S. Baker, Charlotteville, $15; 2d do, R. Swindle, Dundas, $10; 3d do, James Maines, Brampton, $6; 4th do, H. J. Lawry, Hamilton, $4.

Best breeding sow, one year and over, S. Baker, Charlotteville, $10; 2d do, H. J. Lawry, Hamilton, $7; 3d do, do do, $4; 4th do., J. Middlewood, Hamilton, $3.

Best boar, under one year, S. Baker, Charlotteville, $10; 2d do, do do, $6.

Best sow, under one year old, H. J. Lawry, Hamilton, $5.

CLASS XXIV.—ALL OTHER LARGE BREEDS.
(15 Entries.)

Judges—The same as for class XXII.

Best boar, one year and over, J. Morrow, Prescott, $15.

Best breeding sow, one year and over, G. E. Cresswell, Harpurhey, $10; 2d do, D. Smith, Trafalgar, $7; 3d do, W. Lottridge, Barton, $4; 4th do, R. Caldwell, Binbrook, $3.

Best boar, under one year, John Morrow, Prescott, $10; 2d do, J. Jardine, Saltfleet, $6; 3d do, George Savage, Toronto Township, $4.

Best sow, under one year old, John Morrow, Presscot, $5.

PIGS—SMALL BREEDS.

CLASS XXV.—SUFFOLKS.—(28 Entries.)

Judges—Messrs. Walter Riddell, Cobourg; Robt. Dinwoodie, Seymour; David Clapp, Belleville.

Best boar, one year and over, G. Savage, Toronto Township, $15; 2d do, Jas. Gage, Barton, $10; 3d do, Daniel Tye, Wilmot, $6; 4th do, John McGlashan, North Pelham, $4.

Best breeding sow, one year and over, J. McGlashan, North Pelham, $10; 2d do, J. Gage, Barton, $7; 3d do, E. W. Thomson, York Township, $4; 4th do, Peter Mettler, North Pelham, $3.

Best boar, under one year, Peter Lyon, Oakville, imported from United States since last show, $20; 2d do, J. McGlashan, North Pelham, $6; 3d do, Peter Mettler, North Pelham, $4; 4th do, J. McGlashan, North Pelham, $2.

Best sow, under one year old, G. Savage, Toronto, Township, $5; 2d do, John McGlashan, North Pelham, $4; 3d do, Peter Mettler, North Pelham, $3; 4th do, J. McGlashan, North Pelham, $2.

CLASS XXVI.—IMPROVED BERKSHIRES. (45 Entries.)

Judges—Same as class XXV.

Best boar, one year and over, Thomas Penton, South Dumfries, $15; 2d do, C. Head, Guelph, $10; 3d do, T. Calder, Ancaster, $6; 4th do, D. Buchan, South Dumfries, $4.

Best breeding sow, one year and over, A. McNaughton, Clarke, $10; 2d do, E. Penton, S. Dumfries, $7; 3d do. H. J. Lawry, Hamilton, $4; 4th do, A. Gerrie, Ancaster, $3.

Best boar, under one year, E. A. McNaughton, Newcastle, $10; 2d do, T. Penton, South Dumfries, $6; 3d do, D. Buchan, South Dumfries, $4; 4th do, D. Duchan, do, $2.

Best sow, under one year old, S. Anderson, East Flamboro, $5; 2d do, T. Penton, South Dumfries, $4; 3d do, George Roach, Hamilton, $3; 4th do, Geo. Roach, do, $2.

CLASS XXVII.—ALL OTHER SMALL BREEDS. (23 Entries)

Judges—same as class 25.

Best Boar, one year and over, Daniel Tye, Wilmot, $15.

Best Breeding Sow, one year and over, John P. Wheler, Scarboro, $10; 2d do, Joseph Ireland, Nelson, $7,

Best Boar under one year, John Malcolm, Scarborough, $10; 2d do, James Cowan, Waterloo, $6; 3d do, John Malcolm, Beverly, $4; 4th do, James Maines, Chinguacousy, $2.

Best Sow under one year old, George Savage, Toronto Township, $5; 2d do Jas. Cowan, Waterloo, $4; 3d do, do do, $3.

CLASS XXVIII.—PIGS OF ALL BREEDS. (11 Entries.)

Judges—The Committees on all the classes of pigs united.

Best Large Breed Boar of any age, John Morrow, Prescott, Silver Medal.

Best Small Breed Boar, of any age, Geo. Savage, Toronto Township, Silver Medal.

CLASS XXIX—POULTRY, &c.—(279 Entries.)

Judges—Messrs. H. J. Brown, Niagara; Matthew Davidson, Quebec; Richard Moyle, Strathroy.

Best pair white dorkings, S. Peters, London, $4; 2d do, W. Ker, Stamford, $2.

Best pair of Spangled do, R. Harding, Kingston, $4; 2d do, S. Peters, London, $2.

Best pair of black Polands, W. Elder, Barton, $4; 2d do, Thomas Guy, Wnitby, $2.

Best pair White Polands, Dr. Case, Hamilton, $4.

Best pair golden Polands, James O. Guy, Oshawa, $4; 2d do, do do, $2.

Best pair of silver Polands. James Stedman, Hamilton, $4; 3d do, W. Elder, Barton, $2.

Best pair of game fowls, S. Peters, London, $4; 2d do, A. Twentyman, Flamboro, $2.

Best pair of Cochin China, Shanghai, Canton, or Bramah Pootra Fowls, John Brown, Hamilton, $4; 2d do, C. O. Benedict, Clifton, $2.

Best pair of Black Spanish fowls, C. O. Benedict, Clifton, $4; 2d do, James O. Guy, Oshawa, $2.

Best pair of black Java fowls, Dr. Case, Hamilton, $4.

Best pair Bolton grays, G. S. Burrell, Cramahe, $4; 2d do, do do, $2.

Best pair of Hamburgh fowls, S. Peters, London, $4.

Best pair of Dominique, W. Ker, Stamford, $4; 2d do, Dr. Case, Hamilton, $2.

Best pair of feather-legged bantams, W. Ker, Stamford, $2; 2d do, S. Peters, London, $1.

Best pair smooth-legged bantams, S. Peters, London, $2; 2d do, G. S. Burrell, Cramahe, $1.

Best pair of turkeys (white or colored) S. Peters, London, $4; 2d do, Captain Nicolls, Hamilton, $2.

Best pair of wild turkeys Peter Grant, Hamilton, $4.

Best pair of large geese, N. Bethel, St. Catherines, $4; 2d do, D. G. Forbes, Whitby, $2.

Best pair Bremen geese, Jacob Terryberry, Barton, $4; 2d do, Dr. Case, Hamilton, $2.

Best pair of Chinese geese, C. O. Benedict, Clifton, $4; 2d do, Walter Ker, Stamford, $2.

Best pair Muscovy ducks, Walter Ker, Stamford, $4; 2d do, G. S. Burrell, Cramahe, $2.

Best pair common ducks, Samuel Peters, London, $4; 2d do, Dr. Case, Hamilton, $2.

Best pair Aylesbury ducks, S. Peters, London, $4; 2d do, John Rutledge, London, $2.

Best pair Poland ducks, George Somerville, Clarke, $4; 2d do, G. S. Burrell, Cramahe, $2.

Best pair of Rouen ducks, S. Peters, London, $4; 2d do, do do, $2.

Best pair of Guinea fowls, W. Ker, Stamford, $4.

Best pair of pea fowls, D. G. Forbes, Whitby, $4; 2d do, W. Brown, Binbrook, $2.

Best collection of pigeons, J. Middlewood, Hamilton, $4.

Best lot of poultry, in one pen, and owned by the exhibiter, S. Peters, London, $6; do, Adam Mather, Etobicoke, commended.

Best collection of poultry, entered in the various classes by one exhibiter, D. G. Forbes, Whitby, $8.

Best pair rabbits, John Brown, Hamilton, $2; 2d do, H. J. Richards, Hamilton, $1.

Best lot of rabbits, R. A. Land, Hamilton, $4.

Extra Prizes—D. G. Forbes, Whitby, pair silk fowls, $2; Sumatra game fowls, $2; Sumatra pheasant, $2; wild Canadian ducks, $2; Canadian wild geese, $2. Richard Evans, Barton, Guinea pigs, $2; Geo. Summerville, Clarke, Siberian Fowls, $2; Dr. Case, Hamilton, Frizzly Fowls, $2; Rumpless Fowls, $2; Cayuga ducks, $2. Anthony Twentyman, West Flamboro, Russian terrier dog, deserving of notice.

CLASS XXX—FOREIGN STOCK.—(1 Entry.)

Judges—Messrs Jos. Kerby, Guelph, and J. McKerly, Eramosa.

Best stallion for agricultural purposes, Stephen Powell, diploma and $15.

[The conclusion of the Prize List will be given in the next number of the *Agriculturist*.

Dr. S. S. Blodgett, of Ogdensburgh, N. Y., writing to the *Dental Cosmos*, condemns the use of fine charcoal as a tooth powder. He asserts that it is as sharp as diamond dust, and soon wears off the enamel. He says:—"The great dentifrice that should be used at all times, and under all circumstances, is soap. Its alkaline properties serve to neutralize the acids contained in the fluids of the mouth, and its properties will correct the breath and remove offensive odor sooner than any article I have ever seen tried."

Ayrshire Cattle.—Patrick R. Wright, Esq., Cobourg, C. W., breeder of Ayrshire Cattle, Sheep, &c., has several young Bulls and Heifers for sale. His herd is well known as one of the best in Canada West, and his terms of sale are liberal.

Full Pedigree of all animals—U. C. Stock Register.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed for the Board of Agriculture at 77 King Street East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten orders and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, NOVEMBER 16, 1860. No. 22.

The Feeding of Cows for the Production of Butter.

In the last year's *Scottish Journal of Agriculture* appeared a very interesting and suggestive article on the dairy, giving a minute account of Mr. Horsfall's practice in the feeding and management of cows for the production of butter. That gentleman is regarded as a high authority at home in these matters, and his numerous experiments, conducted with much trouble and care, together with a long and extensive practice, give to his conclusions great weight.

The production of butter, both as to quantity and quality, depends in some degree on the breed and natural constitution of the cow, as well as on the system of feeding and general management. And in Canada, as everywhere else, there will be found considerable diversity of opinion on these points. Among all the principal breeds good milkers no doubt are to be found; but the Ayreshire and selected cross-breeds of our native cattle are regarded by many as the most profitable dairy stock, adapted to the wants and climate of this country. But whatever breed or varieties of breeds may be selected, for laying the foundation of a dairy, success must mainly depend on a liberal systematic mode of feeding, cleanliness, warmth, and ventilation; conditions too often but very imperfectly understood or observed by those whose interest it is to be strictly guided by them. Dairy, like all agricultural practices, have to be modified to suit the varying conditions of climate, seasons, markets, &c., and the discriminating farmer will never fail to find in any well established system of management, something that will be suggestive of improvement in his own. It is by thus comparing the practice of others, and adopting such points as appear adapted to special local conditions, that improvement can be with certainty promoted. With this view the reader's attention is called to the following condensed account of Mr. Horsfall's mode of management, in reference to feeding:

In May his cows are turned out on rich pasture near the homestead; towards evening they are housed for the night, when they are supplied with a mess of steamed mixture, to be afterwards described, and a little hay each morning and evening. During June more grass is given to them instead of hay, and they are also allowed two feeds of steamed mixture. This treatment is continued till October, when they are again wholly housed. After this they receive steamed food *ad libitum* three times a day. After each meal cabbages are given, from October till December, kohl-rabi till February, and mangels till grass time; the supply of each of these varieties of green food being limited to 30 or 35 lbs. per day for each cow; 4 lbs. of hay are also allowed after each meal, or 12 lbs. per day for each cow, and water is placed before them thrice a day, of which they partake,

as much as they feel inclined for. The steamed food spoken of above consists of five lbs. of rape-cake, two lbs. of bran for each cow, mixed with a sufficient quantity of bean-straw, oat-straw, and shells of oats, in equal proportions, to supply them three times a day with as much as they will eat. The whole of the materials are moistened and blended together, and, after being well strained, are given to the animals in a warm state. The attendant is allowed 1 lb. to 1½ lb. of bean meal per cow according to circumstances, which is charged to each cow in proportion to the yield of milk; those in full milk getting 2 lbs. each per day, others but little. It is dry, and mixed with steamed food on its being dealt out separately. This is certainly high feeding, but it appears to be amply repaid by the results; for while cows fed in the ordinary way seldom produce milk which yields more than 1 oz. to every quart, Mr. Horsfall's milk gives upwards of 1½ oz. for every quart. It is also an important part of his system never to allow his cows to fall off in condition. He considers the maintenance of the condition essential to a large yield of milk. And there can be no doubt of the soundness of this opinion. A cow low in condition cannot give the same quantity of milk, as much of the nourishment of the food is drawn off to make up the condition of the animal. And when a very lean cow is put on rich food, it is some weeks before the full benefit of the food can be obtained in milk, for the reason before stated. Another useful deduction made by Mr. Horsfall from his experiments is, that albuminous matter is the most essential element in the food of the milch cow, and that any deficiency in the supply of this will be attended by a loss of condition, and a consequent diminution in the quantity of the milk.

It will be seen that bran forms an important ingredient in Mr. Horsfall's mixture, and this substance is often used in Canada in feeding milch cows with profitable results. Brewers' grains, and the refuse of the distilleries, tend largely to increase the quantity of milk, but deteriorate its quality. The particular state in which the food is given has also a great effect in the production of both milk and butter. It is stated, after a series of trials, that the yield of these products was never so great when cows were fed with turnips and beans boiled together into a soft state, as when they got the boiled turnips and the same weight of beans made into meal, and mixed raw with them. Again, that there is more milk, and no taste of the turnip in it, when the turnips are pulped and mixed with cut straw or chaff, and fermented, than if the same weight of turnips is given whole and raw. A warm, equable temperature, and consequent avoidance of cold draughts, perfect cleanliness, and strict punctuality as regards the times for feeding and milking, are known to exercise the greatest influence on the health of the animals, and the amount and quality of their milk.

An English Journal's Opinion of Canada.

The following editorial article in a recent number of *The Mark Lane Express*, one of our most valuable exchanges, cannot fail to interest our readers. The *Express*, it is almost unnecessary to state, is a weekly agricultural paper, published in London, and for its general market intelligence, and extensive acquaintance both with British and Foreign agriculture, it has no rival. Its opinions upon all such matters are well considered and carefully expressed, so as to be regarded as an authority among farmers and a large circle of commercial men.—[Ed.

"The tour of His Royal Highness the Prince of Wales in Canada, with the ample descriptive details of his journeyings and of the districts visited, are calculated to attract attention just now to Canada, to familiarize the public with its scenery, capabilities, and resources, to remove many misconceptions and prejudices respecting that country. The tide of tourists as well as settlers is likely to turn that way, now that steam communication is so frequent and so cheap, and even the British farmer may take his holiday trip in that direction, as well as the jaded member of Parliament, or circumlocution clerk. The emigration to Canada of late years has been very small, as compared with former periods; indeed, scarcely one-third of the numbers of some previous seasons. The whole amount of emigration is now indeed only about one-half what it was on the average of a few past years.

Without touching upon the more picturesque features of Canada, such as may attract the mere tourist or pleasure-seeker—we may glance at the present condition and productive resources of this fine British colony, to which we drew attention prominently about two years

ago. Two years in a British colony, especially an enterprising one like Canada, are marked by great strides, and several events of prominent importance have to be chronicled. Among these are the completion of the magnificent railway bridge of two miles crossing the St. Lawrence, of the gigantic works of the Grand Trunk Railway of Canada, upwards of 1,000 miles in length, connecting the American railway system west of the Great Lakes with the ocean at Portland in winter, and at Montreal, Quebec and Riviere du Loup in summer. This presents probably the most complete and comprehensive railway system in the world; and, taken in connection with the unequalled inland navigation of the St. Lawrance, it cannot fail to attract a large share of the vast and increasing traffic of the west, while it affords to the whole province of Canada the greatest possible facilities for inter-communication. The province is now traversed by upwards of 2,100 miles of railway. By means of its canal and lake navigation, vessels drawing ten feet water can be taken from Fond du Lac in Lake Superior to the Gulf of St. Lawrence, a distance of twenty-two hundred miles. The plank road, which had pushed the venerable "corduroy" back into the woods, has retired before the railroads, with which the province is now traversed. The lakes and rivers are covered by steam-boats, and every year is adding to their comfort and beauty.

The towns and cities are something more than mere colonial villages now; and their public buildings will compare favourably with those of many of the European States, while the improvements that will be made in the new capital, Ottawa, will draw population thither, admirably situated as it is in the centre of the two provinces, and readily accessible from all quarters.

Canada may properly be said to have but three seasons—summer, autumn, and winter. Indeed, were it not for the change of the appearance of the foliage, it would be difficult to say where summer ends and autumn commences. Generally, as soon as the snow disappears, warm weather sets in; and vegetation is exceedingly rapid, so much so, that, although the spring is about a month later than in England, by the end of June vegetation of all kinds is as far advanced as it is here. Corn, on an average, is ready for cutting about a fortnight or three weeks earlier than in this country, and the grain when once ripe dries so fast, that it is not at all unusual for corn to be cut and carried on the same dame day.

For many years the agriculture of the province generally was at a very low standard, but within the last few years it has made great advances, and is beginning to keep pace with the improvements introduced into England and Scotland. The emigration to the colony of scientific agriculturists, with the extended establishment of agricultural societies, has been mainly instrumental in producing this great change. Stock of a different and better description has been imported, and much land that was previously considered by the old proprietors worn out, has been improved and brought back, my means of judicious treatment, to its old capabilities.

The following shows the exports of wheat and flour for Canada for three years:

1855....	3,193,748 bush.	....643,936 brls.
1856....	4,997,656 "	....878,775 "
1857....	2,762,654 "	....743,949 "

The productiveness of the soil, and the high price of wheat in some years, have tended unduly to encourage the growth of this cereal to the neglect of other products of the soil. Hence by the rapid fall in the price of wheat the value of the agricultural exports from Canada fell from £4,384,083 in 1856 to £2,747,516 in 1857.

The farmers of Canada ought certainly to turn their attention more to the raising of live stock, particularly in those sections of the country where the risk of the wheat crop is the greatest. We have seen on the bleak hills of Scotland several thousand sheep in a single flock, and while the long winters of Canada may present a great obstacle to the successful raising of cattle, there can be no doubt, from the success of some of the most intelligent Canadian agriculturists, that sheep farming could be largely and profitably engaged in. We have no late returns of the live stock; but in January, 1852, there were but 1,697,633 sheep in the whole province, and 1,336,111 horned cattle. There were in Upper Canada in 1842 575,730 sheep, and 504,963 cattle, and in 1848 833,807 sheep and 565,845 neat cattle. In Lower Canada there were 602,821 sheep, and 469,851 neat cattle. The decennial increase was, therefore, 519,082 sheep, and 361,297 head of cattle.

Canada, and especially Western Canada, is essentially an agricultural country. Three-fourths of her people are engaged in agriculture, and the other fourth is mainly dependent upon these. Whatever, therefore, contributes to the prosperity of the former tends to advance the interests of all classes in the community. The facilities afforded to the agriculturist by the introduction of railways into Canada have added to the value of real estate in the colony an amount almost incredible. In many parts of the province land has risen from six to forty dollars per acre. This increase in value, however, can only be rendered profitable by a fuller development of the various products of the soil, The experience of the past eight years shows the risks to which the wheat crop is exposed. The chances of the crop itself, and the fluctuations in the price, are greater than those of any other commodity. The labour of the mechanic yields a certain return, but the return of the farmer is dependent on many contingencies.

Within three years wheat sold at 11s. 9d. and 4s. 2d. per bushel in the Toronto market. To the ordinary risks of the crop and the fluctuations in the market must be added the undeniable fact, that continuous cropping must speedily so deteriorate the soil, that the wheat culture will be abandoned in Upper Canada. Like the once fertile valley of the Richelieu in Lower Canada, which in 1790 yielded 40 bush. per acre, the wheat fields of Western Canada, under this present system, will become exhausted, and their owners dependent upon the Western prairies for their daily bread. In this we are but echoing the sentiments of well-informed colonists on the subject. For most other products of the soil there is a steady market, and fair prices, if the Canadians would but turn their attention to their production, instead of allowing their American neighbours to supply the leading cities of the Province with the common necessaries of life. Animals and dairy produce, poultry and eggs, lard, tallow, and meat, hops, seeds, fruit, vegetables, plants and shrubs are all easily supplied by the Americans. With a soil and climate adapted for raising the best fruit in the world, why should the Canadians import a large quantity of apples from the United States?

Much as has already been done, the agricultural resources of Canada have yet to be developed, and dairy produce and the rearing of stock, and attention to the noble river and lake fisheries, will hereafter constitute a considerable source of wealth.

New York State Fair.

The evening discussions form a prominent and interesting feature at the New York State shows. On Wednesday evening the subject for discussion was "Sheep and Wool growing." We copy a part of the discussion touching the comparative merits of long and fine wooled sheep, in which Mr. Wade, President of our Agricultural Association took part.

"Wade, of Port Hope C. W.—Canadian farmers prefer the long-wooled mutton sheep, as a general thing, because they can make more money by keeping them than the fine-wooled. They are more healthy, and though the wool sells for less per pound, the larger fleece brings a higher price to the farmer. Feed well, winter and summer. Grow great quantities of roots, and find them almost indispensable in sheep-keeping, but give anything they relish and all they will eat. It is nonsense to keep any animal poor. In winter principally feed turnips, hay and a few oats. The fleece averages eight pounds each, when well washed. Prefer the Leicester crossed with the Costwold. The Costwold has a heavier carcass and better constitution. The sheep, however, that we now have are modifications of the old breeds whose name they bear. The Leicesters were much modified and improved by Bakewell, who bred in-and-in for the purpose of improving the form, which he accomplished, but in doing so, sacrificed the constitution to a certain extent. It is therefore well for the grower of long-wooled sheep to gain constitution in the way I have mentioned.

John S. Pettibone, Vermont.—I have always recommended the farmer who has only land enough for fifty or a hundred sheep, to keep those best for mutton. But, under other circumstances, fine-wooled are most profitable. I commenced raising Merinos forty years ago, and have continued to this time without admixture or cross. The greatest difficulty with sheep-raisers is that they let their flocks run down in October when the pastures get poor. Unless a person is a good judge, he cannot tell when his sheep are loosing flesh, and thus many are deceived and their flocks get in a low condition before they are aware of it. No one can judge of the value of a sheep when the wool is off. Once I selected two ewes which I considered as near alike as possible, but at shearing time one gave five pounds and the other three. Always examine them in January, and when I find a ewe with long, sott, thick wool, I mark it for myself, and no one can buy it.

A Farmer.—Do Vermont sheep raisers grease their sheep?

Pettibone.—I have no doubt there is a good deal of fraud practised, but I never greased a sheep in my life. Merino wool will be somewhat greasy, but there is a great difference in this respect. I know a gentleman who had a ewe which sheared thirteen pounds of very greasy wool. One of mine sheared five pounds, and yet, when cleaned, my five pound fleece was one pound the heaviest. Those sheep with extremely greasy fleeces, should be discarded, as the wool becomes cold, and the sheep chilled. They will freeze almost as quick as a cabbage plant, and need blanketing in the barn. By a careful selection of ewes, I am enabled to get a hundred good lambs from a hundred and one ewes, and can do this every year. A pen 40 feet in length by 15 in width, is room enough for a hundred sheep in winter, and they will do better than where more room is provided.

Harmon, of Monroe Co.—Some 40 years ago commenced with Merino sheep. After five years trial of these, obtained an imported Leicester buck, which resulted in detriment to the flock, and this cross I soon abandoned. Never let my ewes have lambs until three years old. The range of average weight of fleece in different years is from four to five and one-fourth pounds. Last year the product of 328 sheep in wool, was $707; the year before, from 330, $705. Feed but little hay; use straw, corn, oats, and

some bran. Put about 50 in a stable 14 by 40, and keep from fall to spring. Wash in running water until it ceases to be discolored. Let sheep run from five to eight days after washing before shearing. The wool is not gummy, but thick and fine. Feed in racks. Have some low land, which produces a grass that will keep sheep alive, but make no tallow. Believe long-wooled sheep tender. The wool is long and open, and parts, leaving portions of the skin almost bare. The water gets in, and take cold and die. I lost several by consumption.

Allen, of Black Rock.—Have kept sheep 25 years. My land is a clay loam; lies well up, with good surface drainage; natural to timothy, blue-grass, oats, and corn. The best Canada farmers are mostly foreigners, and are somewhat prejudiced in favor of breeds of sheep popular in Europe. They certainly have most beautiful and magnificent animals of enormous size. They find them profitable, no doubt, but no man can eat them any more than he can eat a cake of tallow. Have seen the sheep in New York, and they are bought by the keepers of large hotels, like the St. Nicholas, to grace the tables, but only a few ounces are eaten. The long-wooled sheep need shelter, for the wool parts, and in wet weather they get cold. They need grain in winter, and some roots; but in our climate, too many roots are apt to scour. The climate of England is different, and there roots are a necessity. Here corn takes the place of roots. They are beautiful sheep, shearing from five to eight pounds of wool.

Bowen, of Orleans Co.—I can hardly sit still and hear such remarks about long-wooled sheep. I live only about thirty miles from the last speaker. I have yearlings that weigh 150 pounds. Don't know anything about the tendency of long-wooled sheep to take cold, but know they are hardier than the Merinos. Have kept sheep all my life. Long-wooled sheep in New York will bring $8 to $10, while Merinos are selling at from $1 50 to $3. There have been long, gaunt, worthless long-wooled sheep in Western New York, and perhaps to these the objections stated will apply. My sheep are called Costwold, though perhaps they are not purely of this breed.

Allen.—I acknowledge the long wooled is a grand sheep, but it is not suited to all farmers under all circumstances. When farmers live near a railroad, where mutton sheep are in demand for market, it is better to raise mutton sheep. But when they are distant from market, it is better to grow for wool. I have fed and fattened a great number of South-Downs, and find it best to get them pretty fat on grain. They mature earlier than most any other sort, and bring more profit. At my place I find it most profitable to raise mutton sheep. Can raise as many lambs from the South-Downs as any others, and they make the best mutton.]

Correspondence.

Orchard Cultivation.

[The following interesting communication, originally addressed to the Secretary of the Bureau of Agriculture, has been in hand for some time, but in the pressure of other business has been overlooked. We now give it insertion with pleasure.]

Apple Croft, Cayuga, }
7th Septemper, 1860. }

Sir,—If every farmer in the Upper Province cannot, like Robert Shallow, Esquire, in the County of Gloster, Justice of the Peace, and Coram, have a goodly dwelling and a rich, yet he ought, at all events, to have one of the the squire's comforts, that of sitting in his own orchard, in an arbor, and eating a last year's pippin, although it were not of his own graffing. This, I confess, I felt it my duty to aspire to, and in attaining to that dignified part of rural independence, I have had to struggle hard, and those difficulties furnish me with the subject of this paper.

You cannot but be aware that the apple tree has its peculiar parasite, which threatens its existence, as the midge does the wheat, and that not many years count its first appearance in this Province, and in the neighbouring republic, and that the insect commonly called the apple louse scale, or the Coccus (Malus), one of those numerous class of insects, Gallinsecta, redeemed from utter uselessness alone, by having amongst them the famous Cochineal insect, and others useful in dyeing, is the one I now speak of—this plague of recent appearance cannot be traced to the place of commencement; but about 25 years ago, it was almost unknown, and now from Florida to Maine, from the great lakes to the Gulf of St. Lawrence, it is notorious, and so common that it cannot be easily got rid of or avoided, and can only be kept in a sort of a way under by incessant care. Once in an orchard the unfortunate proprietor may certainly bid good bye to the thought of eating and not working, for their name is legion. The insect appears as a small scale, adhering firmly to the bark of the tree, not larger than a timothy seed, of the colour of Buckwheat, and, if examined in the spring, will, under that scale, exactly a miniature muscle shell, be found filled with round white eggs, which can be easily separated and counted to the number of forty or fifty; these, by June, are hatched out, and, if watched, appear as nimble, small, white, insects, capable of quick movements, and the next change the observer finds is, that all over the bark new whitish red blotches or dots are seen, which, if examined, prove to be the new insect in its shell, the product of one of those white eggs,

found in the old scale, the outward covering of the female insect, which, authorities say, after certain changes, fixes itself to the tree, deposits its eggs, dies, and leaves its shell as the abode of its young, which, like the parent, in due time quit that shelter to go through the changes peculiar to insect life, to be a torment and a perpetual annoyance in the unceasing round of insect transformations.

It is true we read of this insect infesting the orange groves of Florida, and effecting their ruin, and that at certain periods they can by "shaking violently a tree infected with these insects, myriads and myriads of them may be seen flying between the observer and the rising sun." (Browne.) But I must confess I never saw them in the winged state, although this sets me down as rather a careless observer, yet I cannot account for their moving from one tree to another in any other way, if the slight thread-like filament which is found attached to them at certain times does not, as that of the gossamer spider is known to do, aid their removal; and the earliest state I found them in was, as I said, in that of minute blotches, analogous to the spawn of the oyster, and that they are capable of motion is clear, for you find them, not only on the highest and newest twigs, but even on the fruit; and the insect I saw ran most nimbly, and it was of the same size and colour as the egg. How many broods they have in a season I cannot say, I am inclined to think only one, but all commonplace notions of change and numbers completely fall before the wondrous transformations of insect life; and the facts regarding the insect now under notice, being very few, and its history obscure, makes one suspend allconjecture and forbear all conclusions.

The main questions therefore, with the Pomologist, under these circumstances, are, what can be done to withstand its ravages, and stay its progress; for truly that its power, like the famous Whig notion of the influence of the Crown, in the days when George the third was King, "has increased, is increasing, and ought to be diminished," is certain. I used to be an advocate of the idea that ill-drained wet clay soils were the great causes of the evil, but I find that all soils are liable to the plague, and on high loamy, dry land, the trees are as bad as ever I saw them on the wettest, stiffest clay; and that locality, or climate, or situation, or land, has nothing to do with the keeping away or increasing the insect; and that an orchard once having it, all the draining and advantages will not prevent the mischief spreading, and that once there, all that can be done is to keep it under, and how to do that is certainly a most momentous question.

I went lately into an orchard, standing on undrained, cold wet clay, laying under grass for years, the trees untrimmed, mossed and gnarled, fully expecting that there the plague would be revelling in perfection, but, to my astonishment, it was annoyingly clean,—I visited another, growing on elevated land, a capital loamy soil, not needing draining, possessing all the advantages I craved, the trees full of fruit, and yet there I saw the evil in its glory, the limbs encrusted with the shelly insects as black as a stove pipe, and entirely beyond control, so I concluded that however brought, soil or kind, has no great influence in causing or retarding the evil, and that it lives on all trees, in every situation, and in every condition, and that it will play on the crab, on the poorest, as well as the grafted apple, on the richest land. Nor does the the Coccus alone infect the apple, it is found on the pear, and on the useful common currant, (Ribes Rubrum.)

It has been stated to me as a reason for its increase, that our winters are now more severe on the fruit trees than when the country was not so open, thereby enfeebling the tree, rendering it unthrifty and, like an unhealthy ox, more congenial to insect growth. How this is I cannot say, it may be so here, but in the States, mostly all over, the same annoyance prevails, and there they do not attribute the disease to that cause, so that reason does not hold. Simply the matter is this, the insect came to us, and it thrives abundantly everywhere, for certainly our climate is admirably adapted to insect life.

When I began to plant an orchard some ten years ago, I had no difficulty with my trees, they throve like willows; but an addition I made some years after never prospered nigh so well, taking many times the attention the first got, all from the parasite increasing in abundance, still I never gave in. I dug and delved, I manured and dressed, kept away weeds, and permitted nothing but root crops to grow amongst them, and that even seldom; I scraped and diligently washed bole, limb, and twig, nay I may say truly, painted with all the washes recommended, tobacco juice, soft soap, Bleachers' soda, but in vain; I could not exterminate, only keep under, in a sort of a way, the innumerous insects. Latterly I abandoned that wash and have only used Bleachers' soda, calcined sal soda, diluted with lime water, yet they beat me, and this spring you may conceive how diligent I must have been, when, with my own hands, I washed away 20 lbs. of that soda, and now at this present moment many of the branches make me think of the expression of the fifth James of Scotland, when wooing the good wife's dochter:—

> "An' oh, quo' he, an' zee war as black
> As evir the crown o' your daddy's hat!"

And, certainly, they *'are* as black as any hat, home-made or imported. Now from this I deduce the disease has rapidly increased, and I cannot keep it down, for the first trees were free from it, but the latter planting were, and are very deeply injured; they do not thrive, and are suffering alone from that cause.

The land they grow on is not, it is true, to be

boasted of, being rather a tenacious clay, but it has been carefully drained and kept dry, richly manured, every weed dug away from the roots in spring, and no expense or trouble been spared to make the orchard thrive; indeed, looking at it from the public road it is as good as you will see in fifty miles; but come to examine the trees, the finest are blotched and marred by the scale, and if they had been left to themselves they would have been by this time in the condition of the trees of a German friend, who said they were "joost like scrubby oaks," a state which fairly describes many an orchard in this country as well as that of my kind Rainham friend, and I have no doubt is fully applicable to many a door yard elsewhere.

A neighbour planted his trees at the same time I did, never pruned or dressed them, allowed the ground to be put down to grass, now they are poor dwarfy things, and have no fruit, whereas mine *are* trees, broken down in many cases with apples.

Are we then to abandon our trees to their fate, from examples like mine? Certainly not. The disease may abate; they may outgrow it; some unknown, as yet, check may arise to keep down the evil; something may occur, or still better, your department offering due encouragement, a remedy may be found for the disease, and we get freed from it altogether. This last I hold to be the best hope to rely on; for, were a wash to be had that would destroy the insect and the egg completely, a solvent destructive to animal but not to the vegetable principle, the tree would be freed from the parasite; as it is, all the well known applications do not do this, they may prevent in some measure, but, most unfortunately, they do not cure.

The washing, however, keeps down the plague, which would otherwise destroy the trees, and the further good occurs, the catterpillar is sure to be eradicated during the process. It also destroys moss, and I am certain it deters the formidable borer from doing mischief, as any workings occurring with me, arise entirely from beginning its gallery in the trunk beneath the surface of the ground, where the wash is not likely to touch, and not, as is usual, further up. Again, the vegetable principle is wonderfully stimulated by the washing, as the bark seems completely renovated; and, if the outer skin is scraped off, you will find the other coat of a dark green hue, and the whole tree, after a shower, looking clean, oily, and glistening. Without microscopical observations it is impossible accurately to describe the way the insect feeds on the tree. The damage done is readily seen, but how the whole twig and limb become diseased by the more outward puncturing is strange. You break, and it breaks too easily, a twig, and all through it is brown, and evidently unhealthy. The part swells, and the bark grows corrugated and tumefied, the branch loses the clean, healthy appearance that it ought to have, and all this from the operation of a small minute scale, only stuck, as it were, to the bark. Evidently the circulation is impeded, and a process of decay has commenced.

There is surely an error in the common way of planting an Orchard, and that is in putting the trees too far apart. The proprietor grudges the ground: it looks so wasteful to see a few small twigs sticking up here and there in a field, to the exclusion of all else, and he must have the land to yield something. So he sows it with grain, lays it down to grass,—especially clover, turns in the cattle to have the pasturage, and so farewell to the trees. The grain is sure to stint them, the clover to kill by degrees, the cattle to destroy; whereas if he had contented himself with an acre round his house, devoted entirely to the one object, *that* would be surely gained in a few years. His house would be beautified by the trees; a flower garden and kitchen plot combined, would yield immediate pleasure and profit; and better ten good trees than fifty miserable scrubs. If the insect can only be kept down by incessant care, surely the fewer to attend to the better. If the trees are too thick, cut out the bad kinds, and replace by dwarf pears. I always see trees too thinly planted than otherwise.

I pity the man who is no lover of flowers; evidently he has not been bred amongst decent people. The veriest savage loves these vegetable gems; and apart from their subduing influence, not a book, that is and ought to be a household one, but has multiform images derived from these children of the sun. The Christian cannot but remember that the finest illustration of the goodness of Providence is derived from the "Lillies of the Field," and that they furnish to secular learning a thousand similes, and descriptions of every pleasing beauty. The time is not far distant, I trust, when every Common School will have its flower patch around that nursery of Canadian greatness, that the opening minds there taught may, through them, be both instructed and delighted, and acquire a taste that will last through life for the cheapest, the most innocent of out-door pleasures. The flower garden is a necessary adjunct to the orchard.

It strikes me that dwarfing fruit trees would be a handy means of having a clean orchard; they would never grow out of command, and could always be kept in order. Few can arrive at the dignity of growing these dwarfs after the fashion of the highly-favoured inhabitants of the Parish of Dreepdaily, who raise long kale, under glass, as affirmed by the singular and learned gardener of Osbaldistone Hall; yet, nevertheless, even in the usual open air way, they would be admirably adapted for suburban grounds.

The importance of Orchard growing to Canada cannot be too much enforced, not only as a source of profit to the farmer, but as one of the means of adorning the country, and creating

a taste for a rural pleasure that never fails to delight, and bring forth all the softening influence of domestic virtue, arising from a comfortable home. But even to the way-farer it is a perpetual pleasure, as ornamenting the road he travels; and were flower gardens, neat door yards, and orchards more common, I am of opinion that much of the evils which beset society from tavern haunting and idle hours would be done away with, and what is now a poor naked country, with its listless inhabitants, would in a few years be a boast and a pride, and an example.

In our pursuit after riches, let us not forget the moral riches which spring from sources such as these. Why shall not every Canadian Romeo exclaim to his village Juliet, with passion, truth, and taste,—

"By yon blessed moon, I swear,
That tips with silver all these fruit-tree tops,'

as well as the world-known lover of fair Verona?

Herein, then, consists the advantage of such a department as yours; herein, from under your direction, much that is practical may come, for it cannot rationally be expected that any individual or society can give such an impetus to any movement for a certain object, as a Governmental Department, in pointing out the ways and means to avoid or destroy the evil I write of, of stimulating research, and forwarding improvement: in fine, by aiding in every way a branch of rural economy just dawning, and which we see in a neighbouring country as one very remunerative and praise-worthy.

Partly from this motive I address this to you, and partly as the means of expressing my appreciation of your kindness in the official intercourse I have had the honour of holding with you. Truly, Sir, "the insolence of office" was never found in you, and as I intend, having accomplished in a great measure my aims, to relinquish for a while honours such as this, I adopt this mode of testifying my respect.

ALEX. WIMAN.

To William Hutton, Esq.,
Secretary of the
Bureau of Agriculture, Quebec.

How to Destroy Thistles.

MR. EDITORS,—In your *Agriculturist* of Sept. 1st, I observe under the head of queries, questions as to the best modes of destroying thistles, which I will endeavour to answer, as I have had a good deal of experience in (I will not say totally destroying them), but in stopping their growth for two or three years.

We have 150 acres under cultivation, all of which is more or less troubled with those pests of the Canadian farmers. Our land is a rich soil—clay loams, with a solid clay bottom, which appears to be as well adapted for the growth of thistles as it is for grain.

Our method of killing them as follows: which is, I think, the only effectual way. We plough our fallows four or five times in a summer. We used to plough the fallows in the fall; but, I think it is no advantage to do so, when we have to fallow almost entirely for the purpose of killing thistles, as the land is clear of anything else, and rich enough for further cropping. When the land for fallow is left till spring before it is ploughed, the thistles may be allowed to grow until the end of May or the first of June, when the thistles will then be six inches or a foot above the ground. When if the land was ploughed in the fall, they would have to be allowed the same growth in the spring before ploughing.

We then plough them down the first time, harrow the land twice, which will kill any grass or weeds that may be in it. After it has lain about three weeks, the thistles will again make their appearance, when we plough them again and harrow as before.

Repeat this process four times, or five if necessary; the fifth time will be effectual unless it be a very wet summer. A man may get accustomed to hanging, but thistles will never get accustomed to ploughing—they cannot stand it. The first and second years they will not be much seen, but the third year they will be nearly as thick as ever, unless the land be in a hoe crop, which will keep them back a little; but it is a difficult matter to kill them in good land; in bad land they will not grow. I think by repeated fallowing they may be killed, for in some of our fields there used to be great patches that are now not half as thick.

I find also that two years' mowing in meadow land would prevent their growth for a year or two, but I do not think it will kill them altogether.

With regard to protecting fall wheat from frost by top dressing, I think on dry land it is a great protection. We sowed twenty-six acres of fall wheat last year, in the first week of September. Before ridging it up we covered about five acres with long manure, which in harrowing was pulled up a good deal, and left on the top of the ground; this was on a dry clay soil. In the spring, after the other wheat was nearly all killed, we found the wheat under this straw quite green and good; and at harvest it was the best wheat in the field. Draining, I think, is a great benefit to fall wheat, as it is essentially necessary to preserve it; to keep it dry.

As to the best time for ploughing land, spring or fall, for spring wheat, we have tried both, and find that the fall-ploughed land is the best. We plough all our spring wheat land, now, in the fall, and cultivate it in the spring to the depth of about three inches. On dry land it is less affected by the summer drought; on wet land fall ploughing is not so much consequence.
Respectfully, yours, T. H. GIBSON.

Clarke, Nov., 1860.

Winter Cabbage.

Mr. Editor,—Please let me know, through your next *Agriculturist*, the best kinds of Cabbage to keep through winter, and the best method of keeping them.

J. H. T.

Nov. 9th, 1860.

[The most approved kinds of Winter Cabbage are the Drumhead, Flat Dutch, French Quintal, and St. Denis. The first often attains to a very large size, and is not of so fine a quality as the other sorts.

Cabbage can be kept in a well-ventilated cellar, if not too dry, either by suspending them by the roots to the ceiling; or, which is perhaps better, planting them in a little moist, shallow earth on the floor. Air should be freely admitted night and day, except in severe weather, or cabbage will commence decomposing, thereby causing their destruction, and emitting gaseous matter of a very offensive and injurious character. Indeed the keeping of cabbage in large quantity in the basement of inhabitated houses is not to be generally recommended. A root-house, specially adapted to such purposes, is always preferable.

But cabbage may generally be well secured in the open air, and will keep till the spring, by placing them in trenches in a dry soil, in a manner similar to that in which they grew, and slightly covering them with straw or leaves and a little earth. They can likewise be put into long, narrow piles, on the surface, with their heads outermost, and slightly covering them as before mentioned. The piles should be low and tapering at the top, and holes, filled with torn straw, made through the mass, from the bottom to the top, to prevent heating. A little practice in these matters will generally secure success. In keeping cabbage, and vegetables generally, through winter, the principal thing to be regarded is to prevent them heating as well as freezing. The former often occasions as much loss as the latter.]—Ed.

Agricultural Intelligence.

York Township Carrot Competition.

A very agreeable little party of some score of persons partook of dinner in Mr. McBride's tavern on Yonge Street, about four miles from Toronto, on the evening of October 22nd. Mr. Philip Armstrong, the President of York Township Agricultural Society, occupied the chair. The object of the meeting was to receive the report of the Judges, Messrs. George Leslie, Mowat, and G. P. Dickson, who had carefully weighed and measured a portion of the carrots in the fields of the different competitors. The evening was spent in a very agreeable and instructive manner, the following gentlemen spoke on the importance of root culture in Canada, and gave some account of their modes of management, of the carrot in particular: the Chairman, Professor Buckland, Messrs. Dickson, Mowat, G. Leslie, Fleming, James, Ross, Bull, Jacques and Lea. All the speakers agreed that the cultivation of carrots, turnips, and mangels, was most beneficially extending in the country.

The subjoined tabular statement, will give our readers an idea of the results of the competition. The variety of the carrots was the *Belgian*, and the weight was calculated at the rate of 60 lbs. of carrots to the bushel. It was understood that the judges would prepare a more detailed report, embodying some account of the character of the soil, mode of cultivation, manures applied, &c; which report will probably be submitted, as part of that of the society, to the Board of Agriculture. A similar competition took place a few days ago in the Township of Markham, with very favourable results, but of particulars we have not been informed.

	Bs. lb.	Tons.	C.	qr.	lbs.
First Prize, J. P. Ross.	1269 20	or 38	1	2	10
2nd Prize, W.R. Bartlett	1202 40	36	1	2	10
3rd Prize, Wm. Burgess	1178 40	35	7	0	20
William Jacques	1048 00	31	8	3	05
Philip Armstrong	1038 20	31	3	0	00
James Lesslie....	994 40	29	16	3	05
Joseph Ross....	986 40	29	12	0	00
Robert James..	968 00	29	0	3	05
George Ward..	744 00	22	6	1	15

The above statement, showing that from thirty to nearly forty tons of carrots can be grown per acre, clearly indicates, in connection with the large growths of turnips now almost every where to be found, that Canada has both a soil and climate admirably suited for root culture, and that our farmers are beginning to give the subject an earnest and practical consideration.

Horticultural.

Garden Memoranda.

The operations of out of door gardening may now be considered as terminated, and not a moment should be lost in finally completing winter preparations. So far the season has been remarkably fine and warm, with, up to the middle of the month, very little to remind us of the near advent of winter, but fallen leaves and an occasional white frost.

The soil, both of the flower and kitchen garden, requires annual attention as regards both manuring and cultivating, and nothing should

now be left unfinished that can possibly be performed. Stiff soils are generally benefited by digging them deeply and roughly before winter sets in, so as to expose as great a surface as possible to the action of air, frost, and snow; those important and indispensable agents of amelioration, whose combined action is both mechanical and chemical. In wet soils deep underdraining is an essential requisite, both in the flower and vegetable garden. Most kinds of flowers are greatly improved by an occasional change of soil—such as Verbenas and Petunias in particular—and much may often be done without much labour or expense, in collecting fresh earth and decomposed vegetable matter, thoroughly mixed up with a little quick lime, to incorporate with the flower beds during the fall digging, or in the spring.

The green-house will now require careful attention, and all the various arrangements completed. Care should be taken not to give newly introduced plants in particular, too much heat, which will be sure to injure them permanently. Artificial heat should be very cautiously and gradually applied, with due regard to the nature and habits of plants, and the conditions of the external atmosphere. Ventilation, or the frequent admission of fresh air, should be carefully attended to, avoiding colds or sudden draughts. Plants with well ripened or matured wood will require, through the season, less heat than such as are not properly ripened, which, with whatever amount of attention given them, will never equal the former in hardiness, size, and beauty of development. Camellias, Azaleas, Rhododendrons, etc., prefer a situation in the house somewhat shaded, while others, including the majority, are greatly benefited by the more direct action of the sun's rays. Plants, to be kept in a growing state, must have free access to light, warmth, and moisture; and much care and judgment is needed in conducting such matters properly: regularity of treatment being the grand secret of success. Such as have their young roots growing freely around a ball require repotting; and to obtain fine specimens every leaf and bud should be carefully protected and allowed to mature, otherwise the plants will suffer. Camellias require to have their buds thinned whenever too thickly set, two or three buds to each shoot being quite enough in every instance; and on more weakly shoots one or, at the most, two should be allowed. In order to increase the number of blossoms on flowering annuals, for decoration in winter, their tops should now be pinched off,—a practice which, though it may somewhat diminish the size, multiplies the number of individual flowers, and promotes the general beauty and appearance of the plant.

Many of our readers are no doubt often disappointed in keeping their plants through our long and severe winters, without a regular green-house: their only alternative being either the cellar or the sitting-room. If put in the latter, they should be kept cool, only a few degrees above the freezing point is sufficient, with a degree of moisture not amounting to positive dampness, and plenty of air should be allowed when the weather is moderate. Plants in rooms are sometimes subjected to injurious transitions from heat to cold; the great desideratum being as equable a temperature as possible. House plants being in general surrounded by a much dryer air than usually obtains in a cellar or a green-house, and also to dust, they will be greatly beautified by frequent syringings. By the exercise of attention, founded on a knowledge of the character and habits of plants, many of the most beautiful of Flora's productions may be kept through our Canadian winters without much trouble or expense.

List of Prizes awarded.

PROVINCIAL EXHIBITION, HAMILTON, SEPT.

(*Concluded from page* 576.)

AGRICULTURAL PRODUCTIONS.

CLASS XXXI.—GRAINS, SEEDS, &C.—(764 Entries.)

Judges—E. C Fisher, Etobicoke; Samuel Wilmott, Clarke; John Gibs, Lindsay; John Cullis, Ops; John Stiles, London; D. G. Macdonald, Glengarry; Thomas Bowes, Trafalgar.

The Canada Company's prize for the best 25 bushels of Fall wheat, the produce of Canada West, being the growth of the year 1860; the wheat given up to the Associa-

tion for distribution for seed, H. Moyle, Brantford, $100; 2d do, by the Association, J. Sutton, South Dumfries, $50; 3d do, T. T. Turnbull, Glenmorris, $40; 4th do, I. H. Anderson, West Flamboro', $30; 5th do, T. T. Turnbull, Glenmorris, $20.

Best two bushels winter wheat, T. T. Turnbull, Glenmorris, $14; 2nd do, H. J. Brown, Niagara Township, $11; 3d do, Geo. Oliver, N. Dumfries, $8; 4th do, J. Smith, W. Flamboro', $6; 5th do, W. Freeman, Windham, 3 vols. Trans.

Best two bushels spring wheat, H. P. Zimmerman, Nelson, $14; 2d do, J. Hamilton, W. Flamboro', $11; 3d do, J. Grant, Puslinch, $8; 4th do, W. Phin, Eramosa, $6; 5th do, D. Bastedo, Nelson, 3 vols. Trans.

Best two bushels of barley, (two rowed,) A. Gerrie, Ancaster, $8; 2d do, I. H. Anderson, W. Flamboro', $5; 3d do, A. M. Lockhart, Sherbrooke, Co. Haldimand, $3; 4th do, A. Marshall, Ryckman's Corners, $2; 5th do, R. Dinwoodie, Seymour, vol. Trans.

Best two bushels of barley, (6 rowed), C. Tuck, Nelson, $8; 2d do, J. Nicholson, E. Flamboro', $5; 3d do, I. H. Anderson, W. Flamboro', $3; 4th do, J. Binkley, Ancaster, $2; 5th do, J. Bates, Glanford, vol. Trans.

Best two bushels rye, J. D. Lafferty, W. Flamboro', $7; 2d do, G. S. Burrell, Cramahe, $5; 3d do, W. F. Weese, Rednorsville, $3; 4th do, G. S. Burrell, Cramahe, $2; 6th do, J. Terryberry, Barton, vol. Trans.

Best two bushels oats (white,) A. Young, Barton, $8; 2d do, T. Campbell, Charlottenburg, $5; 3d do, R. Dinwoodie, Seymour, $3; 4th do, D. Bastedo, Nelson, $2; 5th do, A. Gerrie, Ancaster, vol. Trans.

Best two bushels oats (black) W. Benham, Guelph township, $8; 2d do, P. Hinman, Haldimand, $5; 3d do, W. Tolton, Eramosa, $3; 4th do, A. Gerrie, Ancaster, $2; 5th do, J. Sutton, W. Flamboro', vol. Trans.

Best two bushels of field peas, J. Story, Whitby, $8; 2d do, W. F. Weese, Rednorsville, $6; 3d do, J. Belwood, jun., Newcastle, $4; 4th do, W. Wilson, Etobicoke, $3; 5th do, J. DeCloss, Barton, vol. Trans.

Best two bushels of marrowfat peas, C. Tuck, Nelson, $8; 2d do, D. Campbell, Charlottenburg, $6; 3rd do, T. Dunbar, Ancaster, $4; 4th do, A. Shaw, Toronto, $3; 5th do, R. C. Gill, Cramahe, vol. Trans.

Best two bushels tares, J. Norrish, Nassagaweya, $8; 2d do, Z. B. Choate, Glanford, $6; 3d do, Joseph Rymal, Barton, $4; 4th do, Joseph Rymal, Barton, $3; 5th do, W. Riddell, Cobourg, vol. Trans.

Best bushel of white field beans, J. Dynes, Hamilton, $8; 2d do, David Ghent, Nelson, $6; 3d do, C. W. Thompson, Grantham, $4; 4th do, M. C. Nickerson, Woodhouse, $3; 5th do, G. W. Miller, Grantham, vol. Trans.

Best two bushels Indian corn in ear [white] A. F. Pettit, Nelson, $9; 2d do, J. R. Pettit, Grimsby, $7; 3d do, M. Aikman, Barton, $4; 4th do, S. J. J. Brown, Niagara, vol. Trans.

Best two do, [yellow], G. Davis, Nelson, Trafalgar, $9; 2d do, G. J. Miller, Niagara, $7; 3d do, H. J. Brown, Niagara, $4; 4th do, W. A. F. Currie, vol. Trans.

Best bushel of Timothy seed, G. Tolton, Erin, $12; 2d do, J. Moore, Etobicoke, $8; do Wm. Gage, Barton, $8; 3d do, G. Somerville, Clarke, $4; 4th do, T. Guy, Whitby, $2.

Best bushel clover seed, P. R Palmer, Thurlow, $12; 2d do, J. B. Carpenter, Townsend, $8; 3d do, J. M. Bussell, Trafalgar, $4; 4th do, D. Gibson, N. Dumfries, $2.

Best bushel hemp seed, F. G. Nash, Niagara, $9; 2d do, R. C. Gill, Cramahe, $6; 3d do, J. B. Aylesworth, Newburg, $3; 4th do, do, vol. Trans.

Best bushel flax seed, D. Campbell, Charlottenburg, $9; 2d do, J. Hamilton, West Flamboro', $6; 3d do, D. Alton, Nelson, $3; 4th do, W. Benham, Guelph Tp., vol. Trans.

Best Swedish turnip seed, from transplanted bulbs, not less than 20 lbs., R Dinwoodie, Seymour, $9; 2d do, R. C. Gill, Cramahe, $6; 3d do, N. Bethel, St. Catherines, $3; 4th do, H. Wright, South Dumfries, vol. Trans.

Best 14 lbs. field carrot seed, R. Dinwoodie, Seymour, $9; 2d do, R. Dinwoodie, Seymour, $6; 3d do, R. C. Gill, Cramahe, $3; 4th do, C. Holt, Darlington, vol. Trans.

Best 12 lbs. red or yellow mangel wurzel seed, H. Girouard, Hamilton, $9; 2d do D. Faulkner, Fullarton, $6; 3d do R. C. Gill, $3; 4th do, Thomas Hatt, Ancaster, vol. Trans.

Best bale of hops, not less than 112 lbs., W. Woods, Dorchester, $30; 2d do, H. Davis, Brantford, $18; 3d do, do, $12; 4th do, do. $6.

Best bushel horse beans, R. Ibson, Malton,

$7; 2d do, W. Riddell, Cobourg, $4; 3d do, do, $2; 4th do, W. Roddick, Port Hope, vol. Trans.

Best bushel buckwheat, J. Carey, West Flamboro', $4; 2d do, P. Bartholomew, Markham, $3; 3d do, D. Campbell, Charlottenburg, $2; 4th do, H. Lutz, Saltfleet, vol. Trans.

Best bushel Chinese millet, James Pile, Whitby, $4; 2d do, J. G. Teneyck, Binbrook, $3; 3d do, I. Mills, West Flamboro', $2; 4th do, M. C. Nickerson, Woodhouse, vol. Trans.

Extras.—John Renton, Glanford, two bushels winter barley, $3; Frances Kennedy, Hamilton, winter barley, $3; H. J. Brown, Niagara, specimen winter barley, $3; H. P. Wilson, Caistor, Hungarian grass, $3; P. R. Palmer, Thurlow, black-eyed peas, $2; M. C. Nickerson, Woodhouse, marrowfat beans, $1; D. Faulkner, Fullarton, variety garden seeds, $4.

Remarks by Judges.—The judges have much pleasure in stating that the quantity and quality of the wheat exhibited far exceeded that of any former exhibition of the Association, and also in purity of sample surpassed any former year. The judges had very much trouble in deciding upon those samples to which they adjudged the prizes, and regret that many samples of a very superior quality, and which on most occasions would have received a first prize had to be passed over. The judges also beg to state that while they have awarded the first prize to that description known as "Blue Stem," from the fact of its purity of sample and greater weight, they would not by any means recommend this variety of wheat as superior for all purposes.

Class XXXII.—Roots and other field crops.—[546 Entries.]

Judges—Messrs. Geo. Roddick, Cobourg; James Thorndike, Victoria; Horatio Williams, Frankville; Patrick R. Wright, Cobourg.

Best bushel pink-eyed potatoes, S. Wood, Etobicoke, $4; 2d do, S. Taylor, Barton, $3; 3d do, A. Robertson, West Flamboro', $2; 4th do, S. King, Glandford, vol trans.

Best bushel cup potatoes, W. Wilson, Etobicoke, $4; 2d do, J. Hamilton, West Flamboro', $3.

Best bushel goldfinders, Rev. T. Green, Nelson, $4; 2d do, W. A. F. Currie, Niagara, $3; 3d do, H. J. Browne, Niagara, $2; 4th do, J. Beman, Newcastle, vol. trans.

Best bushel white potatoes, E. Hubbard, Guelph, $4; 2d do, J. E. Beman, Newcastle, $3; 3d do, S. Taylor, Barton, $2; 4th do, J. J. Flatt, West Flamboro', vol. trans.

Best bushel red potatoes, R. L. Denison, Toronto, $4; 2d do, C. Harvey, Ancaster, $3; 3d do, S. Taylor, Barton, $2; 4th do, A. W. Taylor, Barton, vol trans.

Best bushel blue potatoes, A. W. Taylor, Barton, $4; 2d do, G. S. Armstrong, Nichol, $3; 3d do, Stephen King, Glanford, $2; 4th do, A. Robertson, West Flamboro', vol trans.

Best bushel of any other sort, George Abrey, Barton, $4; 2d do, Jacob Binkley, Ancaster, $3; 3d do, Dr. Bown, Brantford, $2; 4th do, A.W. Taylor, Barton, vol. trans.

Best bushel Swede turnips, J. Pratt, Cobourg, $4; 2d do, W Burgess Toronto, $3; 3d do, J. Clayton, Etobicoke, $2; 4th do, G. W. Green, Etobicoke, vol. trans.

Best bushel of white globe turnips, A. Gerrie, Ancaster, $4; 2d do, D. Bastedo, Nelson, $3; 3d do, P. Hughes, Puslinch, $2; 4th do, A. W. Taylor, Barton, vol. trans.

Best bushel Aberdeen turnips, J. Jardine, Saltfleet, $4.

Best 20 roots red carrots, E. Hubbard, Guelph, $4; 2d do, G. J. Miller, Niagara, $3; 3d do, J. Bates, Glanford, $2; 4th do, A. W. Taylor, vol. trans.

Best 20 roots white or Belgian do, J. Pratt, Cobourg, $4; 2d do, J. Carey, West Flamboro', $3; 3d do, W. Lindsay, Haldimand Township, $2; 4th do, T. Lotteridge, Barton, vol. trans.

Best 12 roots mangel wurzel, (long red) W. Burgess, Toronto, $4; 2d do, G. Davis, Nelson, $3; 3d do, J. Carey, West Flamboro', $2; 4th do, P. Fisher, Port Nelson, vol. trans.

Best 12 roots yellow globe mangel wurzel, W. Burgess, Toronto, $4; 2d do, T. Smith, Islington, $3; 3d do, W. Riddell, Cobourg, $2; 4th do, D. Campbell, Charlottenburg, vol. trans.

Best 12 roots long yellow mangel wurzel, J. Jardine, Saltfleet, $4; 2d do, D. Campbell, Charlottenburg, $3; 3d do, W. A. Cooley, Ancaster, $2; 4th do, E. McDonald, Guelph, vol. trans. Special, equal to first, sample having been overlooked, but considered best, Wm. Burgess, Toronto, $4.

Best 12 roots kohl rabi, G. J. Miller, Niagara, $4; 2d do, J. G. Keefer, Thorold, vol. trans.

Best 12 roots sugar beet, John Pratt, Cobourg, $4; 2d do, D. Campbell, Charlottenburg, $3; 3d do, D. M. Lee, Ancaster, $2; 4th do, W. Riddell, Cobourg, vol. trans.

Best 20 roots parsnips, Wm. Burgess, Toronto, $4; 2d do, Wm. Benham, Guelph, $3, 3d do, A. W. Taylor, Barton, $2; 4th do, G. J. Miller, Niagara, vol. trans.

Best 20 roots chicory, R. C. Gill, Cramahe, $4; 2d do, W. Burgess, Toronto, $3; 3d do, D. Crawford, & Co, Toronto, $2.

Best 2 large squashes for cattle, W. Burgess, Toronto, $4; 2d do, A. Peachey, Barton, $3; 3d do, W. Carey, West Flamboro', $2, 4th do, Mrs. G. Land, Hamilton, vol. trans.

Best 4 common yellow field pumpkins, W. Gage, Barton, $4; 2d do, Rev. T. Green, Nelson, $3; 3d do, J. Hamilton, West Flamboro', $2; 4th do, W. Lea, York Township, vol. trans.

Best 20 lb tobacco leaf, growth of Canada West, A. C. Quimby, Hamilton, $4; 2d do, A. Peachey, Barton, $3; 3d do, C. W. Thompson, Grantham, $2; 4th do, A. Peachey, vol. trans.

Best broom corn brush, W. F. Weese, Rednorsville, $4; 2d do, do, $3; 3d do, J. Gage, Barton, $2; 4th do, P. Gage, Saltfleet, vol. trans.

The Canada Company's Prize for Flax.

Best 112 lbs of Flax, scutched, D. Campbell, Charlottenburg, $24. No other specimen found.

Extras.—Case of Cigars, F. Schwartz, Hamilton, $2; Assorted Tobacco, do, do, $2; Mammoth Squash, W. Burgess, Toronto, $2.

HORTICULTURAL PRODUCTS.

Class XXXIII.—Fruit.—[690 Entries.]

Judges—Messrs. Robert Warren, Niagara; William Grey, Woodstock; H. Field, London.

Best 20 varieties of apples, named (six of each) H. J. Brown, Niagara, $8; 2d do G. Leslie, Toronto, $6; 3d do C. Beadle, St Catherines, $4; 4th do, J. F. Jones, Brantford, set trans.

Best 12 table apples, named, (Fall sort) S. Wood, Etobicoke, $4; 2d do, W. Carey, Hamilton, $2.50; 3d do, W. Carey, Hamilton, $1.50; do, W. Reid Hamilton, $1.50; 4th do do, C. Arnold, Paris, $1.

Best 12 table apples, named, [Winter sort] W. Reid, Hamilton, $4; 2d do, J. Heslop, West Flamboro', $2.50; 3d do. P. Gage, Barton, $1.50; 4th do, W. Reed, Hamilton, $1.

Best 12 baking apples, named, S. Burner, Hamilton, $4; 2d do, R. Murray, Hamilton, $2.50; 3d do, L. Mullock, Flamboro' East, $1.50; 4th do, J. Haigh, Hamilton, $1.

Best 20 varieties of pears, named, (three of each) C. Beadle, Grantham, $8; 2d do, J. Freed, Barton, $6; 3d do, A. Case, Barton, $4; 4th do, C. Arnold, Paris, 3 vols. Trans.

Best 12 table pears, named, (Fall sort) J. Brown, Hamilton, $4; 2d do, J. C. Kilborn, Beamsville, $2.50; 3d do, C. O. Benedict, Clifton, $1.50; 4th do, H. Shaw, Hamilton, $1.

Best 12 table pears, named, (winter sort,) C, Beadle, St. Catherines, $4; 2d do, G. J. Miller, Niagara, $2.50; 3d do, J. Brown, Hamilton, $1.50; 4th do, A. Leslie, London, $1.

Best 12 plums, named, (dessert,) J. D. Humphreys, Toronto, $4; 2d do, Mrs. Hancock, Hamilton, $2.50; 3d do, C. Arnold, Paris, $1; 4th do, J. C. Kilborn, volume Transactions.

Best 12 baking plums, named, J. M. Hirschfelder, Toronto, $4; 2d do, C. Arnold, Paris, $2.50; 3d do, J. Haigh, Hamilton, $1.50; 4th do, J. Galbraith, Hamilton, $1.

Best quart damsons, (English,) T. Hatt, Dundas, $4; 2d do, W. Reid, Hamilton, $2.50; 3d do, F. G. Nash, Niagara, $1.50.

Best 12 peaches, grown in open air, named, T. Smith, Hamilton, $4; 2d do, G. J. Miller, Niagara, $2.50; 3d do, J. Freed, Barton, $1.50; 4th do, C. O. Benedict, Clifton, $1; Extra, Captain Nicolls, Hamilton, $2; do. J. Freed, Barton, $1.

Best 10 varieties of peaches, grown in open air, 3 of each, J. Freed, Barton, $5; 2d do, C. Beadle, St. Catherines, $4; 3d do, J. F. Barron, Barton, $3; 4th do, Wolverton & Smith, Grimsby, $2.

Best 12 quinces, W. A. F. Currie, Niagara,

$3; 2d do. C. W. Thompson, Grantham, $2; 3d do, S. J. J. Brown, Niagara, $1.50.

Best 3 clusters of golden or white grapes, hot house, T. Sinclair, Hamilton, $4; 2d do, A. Hutchison, Hamilton, $3; 3d do, J. O. Hatt, Hamilton, $2.

Best 3 clusters black grapes, hot house, J. O. Hatt, Hamilton, $4; 2d do, A. Hutchison, Hamilton, $3; 3d do, T. Sinclair, Hamilton, $2.

Best 4 clusters black grapes, grown in open air, J. C. Kilborn, Beamsville, $3; 2d do, J. G. Keefer, Thorold, $2.50; 3d do, J. C. Kilborn, Beamsville, $1.50; 4th do, S. M. Switzer, Palermo, $1.

Best 4 clusters white grapes, grown in open air, W. H. Read, Port Dalhousie, $3; 2d do, C. Howard, Hamilton, $2.50; 3d do, M. Kenna, Hamilton, $1.50.

Best and heaviest 2 clusters of grapes [hot-house,] C. Arnold, Paris, $3; 2d do, A. Hutcheson, Hamilton, $2.50; 3d do, J. O. Hatt, Hamilton, $1.50.

Best and heaviest 2 bunches grapes, [open air,] W. H. Read, Port Dalhousie, $3; 2d do, G. J. Miller, Niagara, $2.50.

Best collection of grapes, grown in open air, 2 clusters of each sort, W. H. Read, Port Dalhousie, $5.

Best green flesh melon, W. Reid, Hamilton, $3; 2d do, R. Evans, Barton, $2.50; 3d do, H. Shaw, Hamilton, $1.50; 4th do, J. Wilds, Barton, $1.

Best red or scarlet flesh melon, J. Wilds, Barton, $3; 2d do, W. Reid, Hamilton, $2 50; 3d do, C. Mills, Barton, $1.50; 4th do, J. Haigh, Hamiton, vol. Trans.

Best water melon, Capt. Nicolls, Barton, $3; 2d do, A. Peachey, Hamilton, $2.50; 3d do, Capt. Nicolls, Barton, $1.50; 4th do, A. Peachey, Hamilton, $1.

Best 6 citrons for preserving, M. Field, Niagara, $3; 2nd do, D. M. Lee, Ancaster, $2.50; 3rd do, W. Reid, Hamilton, $1.50; 4th do, Jas. Wilds, Barton, Vol. Trans.

Best 6 nectarines, J. Binkley, Ancaster, $3.

Best display of fruit, the growth of exhibiter, distinct from other entries, Charles Arnold, Paris, $10; 2nd do, George Leslie, Toronto, $8; 3rd do, C. Beadle, Grantham, $6; 4th do, J. Binkley, Ancaster, $4.

The exhibiter taking the largest number of first prizes for fruit, W. Reid, Port Dalhousie, 4 first prizes, silver medal.

Remarks by Judges.—Messrs. Ellwanger and Barry, of Rochester, N. Y., made a very fine show of fruits, consisting of some 45 varieties of plums, 80 of pears, and 20 of apples, besides a general display, well worthy of a discretionary prize.

Mr. W. Coons, of Illinois, also displays a few good varieties, particularly in peaches, named White Heath Cling, which weighed 14 ounces and measured 11 inches in circumference—Diploma.

A. F. Presbrey, of Buffalo, exhibited seven bottles of very excellent wine, manufactured from native grapes, which deserve particular mention.

The judges regret to complain of the arrangement of fruits in their department, which rendered their task much more difficult, and almost impossible to pass a fair judgment, particularly in so large and beautiful a collection, and from their experience they find they cannot be too urgent in recommending the importance of having the fruits properly classified at such an exhibition.

CLASS XXXIV.—GARDEN VEGETABLES.—

(644 Entries.)

Judges—Professor Hincks, Toronto; Hon. G. W. Allan, Toronto; Geo. Laing, Hamilton.

Best 12 roots of salsify, G. J. Miller, Niagara, $2 50; 2nd do, Thos. Sinclair, Hamilton, $2; 3rd do, R. Evans, Barton, $1 50; 4th do, W. Reid, Hamilton, $1.

Best 4 heads cauliflower, H. Shaw, Hamilton, $2 50; 2nd do, John Freed, Barton, $2; 3rd do, Robert Murray, Hamilton, $1 50; 4th do, James Wilds, Barton, $1.

Best 4 heads cabbage, (summer) John F. Barron, Barton, $2 50; 2nd do, James Gay, Barton, $2; 3rd do, A. W. Taylor, Barton, $1 50; 4th do, T. Sinclair, Hamilton, vol. Trans.

Best 4 heads cabbage, (winter), John Brown, Hamilton, $2 50; 2nd do, W. Burgess, Toronto, $2; 3rd do, E. C. Fearnside, Hamilton, $1 50; 4th do, A. Peachey, Hamilton, $1.

Best 4 sorts winter cabbage, including savoys, two of each sort, W. Burgess, Toronto, $4; 2nd do, J. F. Barron, Barton, $3; 3rd do, James Wilds, Barton, $2; 4th do, C. Mills, Barton, $1.

Best 4 heads red cabbage, A. A. Secord, Barton, $2 50; 2nd do, W. Burgess, Toronto, $2; 3rd do, G. J. Miller, Niagara,

$1 50; 4th do, W. Chapman, Hamilton, vol. Trans.

Best 12 carrots for table, long red, G. S. Armstrong, Nichol, $2 50; 2nd do, H. Shaw, Hamilton, $2; 3rd do, S. Taylor, Barton, $1 50; 4th do, G. Hubbard, Guelph, $1.

Best 12 early horn carrots, R. Evans, Barton, $2 50; 2nd do, J. Wilds, Barton, $2; 3rd do, Matt. Kerr, Hungerford, $1 50; 4th do, A. A. Baker, Guelph, $1.

Best 12 table parsnips, R. Evans, Barton, $2 50; 2nd do, G. S. Armstrong, Nichol, $2; 3rd do, W. Reid, Hamilton, $1 50; 4th do, James Wilds, Barton, vol. Trans.

Best 6 roots of white celery, John Freed, Barton, $2 50; 2nd do, do, $2; 3rd do, James Wilds, $1 50; 4th do, W. Burgess, Toronto, $1.

Best 6 roots of red celery, John Freed, Barton, $2 50; 2nd do, A. Peachey, Hamilton, $2; 3rd do, W. Burgess, Toronto, $1 50; 4th do, James Wilds, Barton, $1.

Best dozen capsicums (ripe), T. Sinclair, Hamilton, $2 50; 2nd do, G. J. Miller, Niagara, $2; 3rd do, J. A. Woodruff, Niagara, $1 50; 4th do, James Baker, Hamilton, vol. Trans.

Best collection of capsicums (ripe), six of each sort, A. Peachey, Hamilton, $3; 2nd do, G. J. Miller, Niagara, $2 50; 3rd do, J. D. Humphreys, Toronto, $2; 4th do, John Haigh, Hamilton, $1 50.

Best 6 egg plants, purple, A. Peachey, Hamilton, $2 50; 2nd do, do, $2; 3rd do, do, $1 50; 4th do, John Haigh, Hamilton, $1.

Best 12 tomatoes, red, A. W. Taylor, Barton, $2 50; 2nd do, R. Evans, Barton, $2; 3rd do, R. Murray, Hamilton, $1 50; 4th do, J. Baker, Hamilton, $1.

Best 12 tomatoes, yellow, Thomas Ironfield, Toronto, $2 50; 2nd do, W. Burgess, Toronto, $2; 3rd do, James Sinclair, Hamilton, $1 50; 4th do, E. C. Fearnside, Hamilton, vol. Trans.

Best assorted collection of tomatoes, 6 each of large sorts, and 12 each of small sorts, E. C. Fearnside, Hamilton, $3; 2nd do, G. J. Miller, Niagara, $2 50; 3rd do, Thomas Ironfield, Toronto, $1 50; 4th do, T. S. Wood, Frankford, $1.

Best 12 blood beets, W. Reid, Hamilton, $2 50; 2nd do, A. W. Taylor, Barton, $2; 3rd do, H. Battel, Grafton, $1 50; 4th do, J. Carey, West Flamboro', $1.

Best peck of white onions, A. W. Taylor, Barton, $2 50; 2nd do, R. Bugler, London, $2; 3rd do, G. J. Miller, Niagara, $1 50; 4th do, W. Benham, Guelph, $1.

Best peck yellow onions, A. Peachey, Hamilton, $2 50; 2nd do, J. F. Barron, Barton, $2; 3rd do, T. Sinclair, Hamilton, $1 50; 4th do, A. Peachey, vol. Trans.

Best peck of red onions, A. Peachey, Hamilton, $2 50; 2nd, do, do, $2; 3rd do, M. Norris, Nelson, $1 50; 4th do, James Gay, Barton, $1.

Best 12 white turnips (table,) R. Evans, Barton, $2 50; 2nd do, R. C. Gill, Cramahe, $2; 3rd do, A. W. Taylor, Barton, $1 50; 4th do, J. F. Barron, Barton, $1.

Best 12 ears sweet corn, James Harvey, Barton, $2 50; 2nd do, A. W. Taylor, Barton, $2; 3rd do, A. W. Taylor, Barton, $1 50; 4th do, James Harvey, vol. Trans.

Best and greatest variety of potatoes, half peck of each sort, named, A. Peachey, Hamilton, $4; 2nd do, A. W. Taylor, Barton, $3; 3rd do, Rev. T. Green, Nelson, $2; 4th do, Robert Inksetter, Beverley, $1.

Best 4 squashes, (table), Thomas Ironfield, Toronto, $2 50; 2nd do, James Harvey, Barton, $2; 3rd do, John Freed, Barton, $1 50; 4th do, G. J. Miller, Niagara, $1.

Best and greatest variety of vegetables, (distinct from other entries), each kind named, A. Peachey, Hamilton, $5; 2nd do, A. W. Taylor, Barton, $4; 3rd do, R. Bugler, London, $3.

The exhibiter taking the greatest number of first prizes for garden vegetables, A. Peachey, Hamilton, six first prizes, Silver Medal.

EXTRAS IN FRUIT AND VEGETABLES.

Z. B. Lewis, Clifton, Siberian crab apples, 50c. C. Beadle, Grantham, collection of fruit trees, and display of fruit grown upon such trees, highly commended, diploma. H. Girouard, Hamilton, potato onions, $1. Andrew Stephens, gardener to Col. Gourlay, Barton Lodge, Hamilton, Siberian crabs, 50c; New Zealand spinach, 50c; turnip beet, $1; Havana tobacco, 50c; early potatoes, $1. Mattaniah Kerr, Hungerford, black cherries, $1. Hendershot and Wilkins, Ancaster, cranberries, $1. C. O. Benedict, Clifton, transcendant crab apple, 50c; Siberian do, 50c. Leonard Salmon, Binbrook, top onions, 50c; E. C.

Fearnside, Hamilton, Siberian crab, $1; James McManus, East Flamboro, Scotch Kale, $1. J. D. Humphreys, Toronto, Siberian crabs, golden beauty, $1; do. Montreal beauty, $2; capsicums in pots, $2; collection egg plants, $1; kidney beans, 50c; collection gourds, $1; mushroom, 50c. A. A. Baker, Guelph, Madeira onions, 50c. J. M. Hirschfelder, Toronto, asparagus beans, 50c. A. Hutchison, Hamilton, variety of grapes, $1. R. Evans, Barton, French beans, 50c. Jno. F. Barron, Barton, pop corn, 50c; cucumbers, 50c. J. Haigh, Hamilton, brace cucumbers, 50c; pickling onions, 50c. Thos. Hatt, Ancaster, Japan apple pie water melon, 50c. A. W. Taylor, Barton, leeks, 50c; lettuce and radishes, commended. John Freed, Barton, Lawton blackberries, $1. John Brown, Hamilton, collection of plants, $6; collection of native ferns, $2; red currant cherries, $1; collection of currants, $1. A. Peachey, Hamilton, French beans, 50c; curled parsley, 50c; collection of egg fruit, $1; cranberries, commended. James Wilds, Barton, radishes, commended. Ellwanger & Barry, Rochester, N. Y., 42 varieties apples, 42 varieties pears, varieties of plums, (see note, extras, class 35,) diploma and $20.

Remarks.—The collection of fruits shown by Dr. Beadle of St. Catharines, is most remarkably fine, including some new varieties and preserved summer fruits, as well as all those of the season. From its value and the style in which it is exhibited it deserves conspicuous notice.

CLASS XXXV.—PLANTS AND FLOWERS.—(142 Entries.)

Judges—Professor Hincks, Toronto; Hon. G. W. Allan, Toronto; George Laing, Hamilton.

Best dozen dahlias, named, George Leslie, Toronto, $2 50; 2nd do, T. C. Hagerman, Trafalgar, $2.

Best and largest collection of dahlias, Bruce & Murray, Hamilton, $6; 2nd do, G. Leslie, Toronto, $5.

Best bouquet of cut flowers, (for table) J. M. Hirschfelder, Toronto, $2 50; 2nd do, —— ——, $2; 3rd do, H. Shaw, Hamilton, $1 50; 4th do, T. Sinclair, Hamilton, $1.

Best hand bouquet, J. M. Hirschfelder, Toronto, $2 50; 2nd do, Bruce & Murray, Hamilton, $2; 3rd do, —— ——, $1 50; 4th do, T. Sinclair, Hamilton, $1.

Best collection of green house plants, not less than 12 specimens, in flower, John Brown, Hamilton, $12; 2nd do, H. Shaw, Hamilton, $8; 3rd do, T. Sinclair, Hamilton, $6.

Best 12 pansies, W. Chapman, Hamilton, $2 50; 2nd do, M. Kenna, Hamilton, $2; 3rd do, T. Sinclair, Hamilton, $1 50.

Best 6 fuchsias, in flower, T. Sinclair, Hamilton, $3; 2nd do, H. Shaw, Hamilton, $2 50; 3rd do, A. Peachey, Hamilton, $1 50; 4th do, do, $1.

Best collection of annuals in bloom, R. Murray, Hamilton, $2 50; 2nd do, T. Sinclair, Hamilton, $2; 3rd do, J. M. Hirschfelder, Toronto, $1 50; 4th do, W. Chapman, Hamilton, $1.

Best 6 cockscombs, H. Shaw, Hamilton, $2 50; 2nd do, R. Murray, Hamilton, $2; 3rd do, G. J. Miller, Niagara, $1 50.

Best 6 balsams in bloom, A. Hutchinson, Hamilton, $2 50; 2nd do, R. C. Gill, Cramahe, $2; 3rd do, W. Chapman, Hamilton, $1 50; 4th do, H. Shaw, Hamilton, $1.

Best collection of asters, T. Sinclair, Hamilton, $2 50; 2nd do, R. Murray, Hamilton, $2; 3rd do, W. Riddell, Hamilton, $1 50; 4th do, H. Shaw, Hamilton, $1.

Best collection of hybrid perpetual roses, not less than 12 blooms, H. Girouard, Hamilton, $2 50; 2nd do, Bruce & Murray, Hamilton, $2.

Best floral ornament or design, J. M. Hirschfelder, Toronto, $6; 2nd do, R. Bugler, London, $5; 3rd do, A. Hutchinson, Hamilton, $4; 4th do, J. M. Hirschfelder, Toronto, $3.

Best collection verbenas, not less than 12 varieties, Bruce & Murray, Hamilton, $3; 2nd do, R. Murray, Hamilton, $2 50; 3rd do, H. Shaw, Hamilton, $1 50; 4th do, W. Chapman, Hamilton, $1.

Best 6 petunias, J. M. Hirschfelder, Toronto, $2 50; 2nd do, T. Sinclair, Hamilton, $2; 3rd do, J. M. Hirschfelder, Toronto, $1 50; 4th do, F. G. Nash, Niagara, $1.

Best collection perennial phloxes, Bruce & Murray, Hamilton, $2 50; 2nd do, John Freed, Barton, 2; 3rd do, George Leslie, Toronto, $1 50.

Best 6 hardy shrubs, John Freed, Barton, $2 50; 2nd do, H. Girouard, Hamilton, $2; 3rd do, G. Leslie, Toronto, $1 50.

Best collection hollyhocks, Bruce & Murray, Hamilton, $2 50; 2nd do, T. Sinclair,

Hamilton, $2; 3rd do, G. Leslie, Toronto, $1 50; 4th do, James Fleming, Toronto, vol. Trans.

Best display of plants in flower, distinct from other entries, Bruce & Murray, Hamilton, $10; 2nd do, J. M. Hirschfelder, Toronto, $8.

Best collection of native plants, dried and named, Miss Kate Crooks, Hamilton, $7; 2nd do, W. McGregor, Lowville, $5.

Best specimen of useful and ornamental rustic work for the garden, H. Girouard, Hamilton, $5; 2nd do, James Milne, Hamilton, $4; 3rd do, John F. Barron, Barton, $3.

The exhibiter taking the largest number of first prizes in plants and flowers, Bruce and Murray, Hamilton, five first prizes, Silver Medal.

EXTRAS.—H. Girouard, Hamilton, bouquet of native flowers, 50c. Andrew Stephens, Barton Lodge, French marigolds, $1. J. M. Hirschfelder, Toronto, collection of petunias, $1; foliage plants, $2. H. Shaw, Hamilton, collection fuchsias, $2; marigolds, $1. T. Sinclair, Hamilton, fuchsias, $2; collection phloxes, $1. Bruce & Murray, Hamilton, achimenes, $1; radishes, $2; asters in pots, $2; fruit trees in pots, $4, and diploma; foliage plants, $4.

REMARK OF JUDGES.—The trees (exhibited by Bruce and Murray) are orchard house trees of great merit, and novel here, and consequently of much interest.

CLASS XXXVI.—DAIRY PRODUCTS, &C.—(201 Entries.)

Judges—Messrs. D. B. Solmes, Prince Edward County; James Woods, Stratford; George Bateman, Jno. B. Aylesworth, Newburgh; John Hitchins, Amherst Island, Wm. Humphries, Warkworth; I. S. Ross, Iroquois.

Best firkin of butter, in shipping order, not less than 56 lbs, John Youart, Nassagaweya, $15; 2nd do, Thomas Bolton, Guelph, $12; 3rd do, P. R. Palmer, Thurlow, $9; 4th do, H. M. Byers, Downey, $6; 5th do, John Fothergill, Nelson, $3.

Best butter, not less than 28lbs, in firkins, crocks, or tubs, P. R. Palmer, Thurlow, $10; 2nd do, W. Freeman, Saltfleet, $8; 3rd do, A. Wilson, North Dumfries, $6; 4th do, J. R. Markle, West Flamboro, $4; 5th do, R. Atkins, Ancaster, 3 vols. Trans.

Best 28 lbs of butter made in June, statement of the manner of making and preserving to be furnished with the entry, Thomas Bolton, Guelph, Silver Medal.

Best cheese, not less than 30 lbs, H. Ranney, Dereham, $12; 2nd do, John Adams, Ingersoll, $10; 3rd do, H. Ranney, $8; 4th do, James Cowan, Waterloo, $6; 5th do, P. R. Palmer, Thurlow, $4.

Best 2 stilton cheese, not less than 14lbs. each, H. Ranney, Dereham, $12; 2nd do, H. K. Parsons, Guelph, $10; 3rd do, H. Ranney, Dereham, $8; 4th do, H. K. Parsons, Guelph, $6; 5th do, Mary McNaughton, Onondaga, $4.

Best honey in the comb, not less than 10lbs, Wm. Ptolemy, Binbrook, $4; do, T. S. Wood, Frankford, $4; 2nd do, J. C. Killborn, Beamsville, $3; 3rd do, P. H. Gibb, Oshawa, $2; 4th do, Hugh McKee, Norwich, $2.

Best jar of clear honey, George Miller, Markham, $4; 2nd do, J. Heslop, West Flamboro', $3; 3rd do, G. S. Armstrong, Nichol, $2; 4th do, Mrs. Hancock, Hamilton, vol. Trans.

EXTRAS.—Hiram Ranney, Dereham, pine apple cheese, $6; do, $3. J. C. Kilborn, Beamsville, observatory bee-hive, $3. Thos. Muir, Grimsby, bee-hive with bees, $2; bees-wax, $1. W. Beemer, Brantford, hive of bees, $4.

CLASS XXXVII.—AGRICULTURAL IMPLEMENTS, WORKED BY HORSE OR OTHER POWER.—(226 Entries.)

Judges—Messrs. H. A. Massey, Newcastle; John Dunlop, Woodstock; Dugald Lamont, Aldboro.

Best iron plough, E. Wilmot, Kingston, diploma and $15; 2nd do, James Fraser, Puslinch, $10; 3rd do, Adam Cordy, Barton, $8.

NOTE.—The judges highly condemn the principle of exhibiting farming implements highly polished, as of no utility, but for mere show; and would recommend that the article exhibited should be the same as sold to the public.

Best wooden plow, I. Modeland, Brampton, diploma, and $15; 2nd do, W. Mahaffey, Brampton, $10; 3rd do, Joseph Hall, Oshawa, $5.

Best subsoil plow, Peter Mallaby, Weston, diploma and $15; 2nd do, George Morley, Thorold, $10; 3rd do, Wm. Lea, York Township, $5.

Best double shear trench plough, J. Bing-

ham, Burford, 2nd prize, $8; 2nd do. do, do, 3rd prize, $5.

Best double mould plow, George Morley, Thorold, $12; 2nd do, J. Wishart, Waterdown, $8; 3rd do, J. Robertson, Barton, $5.

Best pair of harrows, William Howard, Streetsville, $7; 2nd do, P. Mallaby, Weston, $5; 3rd do, P. Thomson, Galt, $3.

Extra.—Wm. Crowe, Guelph, wood harrow, $3; G. J. Brown, Belleville, new land harrow, $3.

Best horse-power thresher and separator, Joseph Hall, Oshawa, diploma, and $25; 2nd do, John Watson, Ayr, $15; 3rd do, Samuel Morse, Milton, $10.

Best grain drill, Maxwell & Connell, Paris, diploma and $15; 2nd do, John Watson, Ayr, $10; 3rd do, J. Bingham, Burford, $5.

Best straw cutter, J. W. McLaren, Lowville, $7; 2nd do, Maxwell & Connell, Paris, $5; 3rd do, Lutz, Cook & Co., Galt, $3.

Best smut machine, John Gartshore, Dundas, $6; 2nd do, Goldie & Co., Galt, $4.

Best portable grist mill, H. A. Massey, Newcastle, $15; extra, John Gartshore, Dundas, $10; do, Goldie & Co., Galt, $5.

Note.—Nos. 1 and 4, (Messrs. Gartshore and Goldie's) the Judges do not consider real portable mills, being too cumbersome and expensive for the farmer's use, and recommend extra prizes as above, instead of awarding the prizes according to the list.

Best grain cracker, A. Harris, Beamsville, $10; 2nd do, J. Brown, Belleville, $8.

Best clover cleaning machine, George H. Wilkes, Brantford, $15; 2nd do, A. Harris, Beamsville, $10; 3rd do, A. Harris, Beamsville, $5.

Best cider mill and press, Sampson & Sons, St. Catharines, $15; 2nd do, Sampson & Sons, do, $10; 3rd do, Levi Howell, Jerseyville, $5.

Best two-horse wagon, Martin & Passmore, Goderich, $15; J. W. Weber, Conestoga, $10; 3rd do, W. Snowball, St. George, $5.

Best one horse light market wagon, Samuel Lake, Camden East, $12; 2nd do. W. Kerr, Beamsville, $9.

Best farm sleigh, James Kennedy, Toronto Township. $9 2nd do, George F. Howell, Ancaster, $6.

Best horse-rake, Alex. Williams, Ancaster, $5; 2nd do, W. Freeman, Saltfleet, $4; 3rd do. Hewitt & McKay, Beamsville, $3.

Best metal roller, H. A. Massey, Newcastle, $12; 2nd do, I. Lefflar, Toronto Township, $8.

Best wooden roller, A. Murdock, Ancaster, $8; 2nd do, H. Leonard, Township of Kingston, $6; 3d do, P. Shaver, Ancaster, $4.

Best stump extractor, John Thomas, Barton, $12; 2nd do, John Thomas, Barton, $8; 3rd do, J. W. McLaren, Lowville, $4.

Best reaping machine, I. Lefflar, Toronto Township, diploma and $25; 2nd do, I. Modeland, Brampton, $15; 3rd do, Billington & Forsyth, Dundas, $10.

Best mowing machine, I. Lefflar, Toronto Township, diploma and $25; 2nd do, Palmer & Grant, Grimsby, $15; 3rd do, Billington & Forsyth, Dundas, $10.

Best combined mower and reaper, Nelson Green, Waterford, diploma and $25; 2nd do, R. & R. S. Patterson, Belleville, $15; 3rd do, Bell & Lawrason, Dumfries, $10.

Best field or two-horse cultivator, S. Eckhart, Markham, $15; 2nd do, George Robinson, Markham, $10; 3rd do, J. W. McLaren, Lowville, $5.

Best horse hoe, or single cultivator, Geo. Prentice, Columbus, $4; 2nd do, G. & J. Brown, Belleville, $3; 3rd do, Francis Benest, Grantham, $2.

Most valuable machine or implement for the farmer, either newly invented, or an improvement on any one in use, P. C. VanBrocklin, Brantford, Silver Medal.

Extras.—Wm. Wells, Barton, hay rack, $1; Matthew Wiard, Ancaster, seed drill, horse-power, $2; gang plough for three horses, $3. E. Wilmot, Kingston, chain harrow, $5. Alanson Harris, Beamsville, corn sheller and root cutter combined, $1; horse hoe and cultivator combined, $2; Hewitt & McKay, Beamsville, cylinder corn sheller, $3. Samson & Son, St. Catharines, gang plough, $2; Wilson & Adams, Paris, two horse wheel plough, $10. Joseph Lourie, Sarnia, mole drain plough, $2. Alex. Williams, Ancaster, hay rack, $4. Stephen Lyons, Ancaster, hay rack, $2. Gideon Huntingdon, Norwich, combined gang plough and seed sower, $10. Goldie & Co., Galt, bran duster, $2; proof staff, $1; central discharge water wheel, $2; burr mill stones, $2. W. Beemer, Brantford, bee house, $1. A. S. Whiting, Oshawa, weeding hoe, $3. M. Wiard, Ancaster, seed drill for sowing small seeds, $5. Harrison & Son, Nelson, two horse market waggon, $5. Henry Kerr, Beamsville, two horse market waggon, $2.

CLASS XXXVIII.—AGRICULTURAL TOOLS AND IMPLEMENTS, CHIEFLY FOR HAND USE.—(153 Entries.)

Judges—Thos. Allin, Oshawa; James Noble. Amherstburgh ; John Watson, Eglington,

Best fanning mill, D. E. Norton, Toronto, diploma and $7 ; 2nd do, J. Mitchell, Paris, $5 ; 3rd do, W. Tout, Hamilton, $3.

Best seed drill or harrow, J. W. Greene, Greenesville, $5 ; 2nd do, W. Crowe, Guelph, $4 ; 3rd do, Matthew Wiard, Ancaster, $3 ; 4th do, Emmanuel Rockey, Ancaster, $2.

EXTRA.—Best seed drill for sowing small seeds, (horse power,) James Berry, Nelson, $5 ; 2nd do, James Frazer, Puslinch, $4 ; 3rd do, John Watson, Ayr, $3.

Best straw cutter, Lutz, Smith & Co., Galt, $6 ; 2nd do, G. Robinson, Markham, $5 ; 3rd do, J. W. McLaren, Lowville, $4.

Best machine for cutting roots for stock, J. Bingham, Burford, $6 ; 2nd do, Billington & Forsyth, Dundas, $5 ; 3rd do, Samson & Sons, St. Catherines, $4.

Best cheese press, J. A. Green, Saltfleet, $8 ; 2nd do, John Ames, Hamilton, $6.

Best churn, J. James, Newmarket, $4 ; 2nd do, Harker & Co., Paris, $3 ; 3rd do, J. A. Green, Saltfleet, $2.

Best farm gate, S. Parmenter, West Flamboro', $4 ; 2nd do, S. Hall, Toronto, $3.

Best farm fence of wood, S. Hall, Toronto, $6.

Best wooden pump, W. B. Markle, Ancaster, $4 ; 2nd do, A. Land, Saltfleet, $3 ; 3rd do, J. Brokenshire, Bowmanville, $2. Extra—J. Brokenshire, Bowmanville, ship pump, $4.

Best half dozen hay rakes, W. Tait & Co., Orford, $3 ; 2nd do, S. H. Bishop, Moulton, $2 ; 3rd do, W. Tait & Co, Orford, $1.

Best half dozen manure forks, A. S. Whiting, Oshawa, $4.

Best half dozen hay forks, A. S. Whiting, Oshawa, $4.

Best half dozen scythe snaiths, W. Tait & Co., Orford, $4 ; 2nd do, W. Tait & Co., Orford, $3.

Best ox-yoke and bows, J. Baker, East Flamboro', $3 ; 2nd do, P. Hinman, Haldimand, $2 ; 3rd do, J. Norrish, Nassagaweya, vol. Trans.

Best grain cradle, H. Young, Nassagaweya, $3 ; 2nd do, W. Tait & Co., Orford, $2 ; 3rd do, W. Tait & Co., vol. Trans.

Best half dozen steel hoes, A. S. Whiting, Oshawa, $4.

Best half-dozen grass scythes, A. S. Whiting, Oshawa, $4.

Best half-dozen cradle scythes, A. S. Whiting, Oshawa, $4.

Best straw fork, wood, Hewitt & McKay, Grantham, $3 ; 2nd do, W. Lottridge, Barton, $2 ; 3rd do, D. McGregor, Nelson, vol. Trans.

EXTRAS.—A. S. Whiting, Oshawa, spading forks, $1 ; potato hooks, $1 ; cast steel rakes, $1 ; malleable steel rakes, $1 ; garden rakes, 50c. Jas. A. Green, Saltfleet, corn sheller, $2. J. W. McLaren, Lowville, $5. H. & P.Combs, Saltfleet, model of barn door fastening, $1. M. Wiard, Ancaster, compensation yoke for three horses, $1 ; set of swing trees, new principle, $1. W. Walker, Westminster, $1 ; land scraper, $1. John Ames, Hamilton, street cleaning machine, $2. Abel Land, Saltfleet, pump suckers, $1; G. H. Meakins, Hamilton, machine for testing eggs, $1. D. McGregor, Nelson, ring beetle, 50c. ; maul, 50c.; stone cutter's maul, 50c ; fork of wood, $1. John Wilson, Nelson, Tinsmith's maul, 50c. Cameron & Harris, Kingsmill, force pump, $4. T. L. Kilborn, Kettleby, washing machine, $2 ; do, with double acting crank, $2. James Cinnamon, Oshawa, washing machine, $2.

CLASS XXXIX.—CATTLE FOOD—MANURES AND MISCELLANEOUS.—(6 Entries.)

Judges—Messrs. Joseph Kerby, Guelph, and John McKerlie, Eramosa.

Best specimen ground bones for manure, John Gartshore, Dundas, $4.

Best specimen other artificial manure, Duncan Bruce, Cornwall, $4.

EXTRAS.—Barrel of land plaster, Thos. Martindale, Oneida, $4 ; barrel of prepared plaster, Thos. Martindale, Oneida, $3.

REMARK OF JUDGES.—The specimens on exhibition in this class are very good, but we regret to see so few entries.

CLASS XL.—FOREIGN AGRICULTURAL IMPLEMENTS.—(2 Entries.)

Judges.—The same as for Class 39.

Patent root cutter, F. Fidler, Batavia, New York, $6 ; clover machine model, J. C. Birdsell, West Henrietta, New York, $4.

DEPARTMENT SECOND.

CLASS XLI.—ARCHITECTURAL AND MISCELLANEOUS USEFUL ARTS.—(70 Entries.)

Judges.— Messrs. George Bickle, David Allen and D. Way.

Best specimen of modelling in plaster, of natural foliage, (Canadian) applicable to architectural details, James G. Dow, Hamilton, $8 and silver medal.

Best collection of mathematical, philosophical, and surveyor's instruments, A. Potter, Toronto, $8.

Best carving in wood, E. Roper, Hamilton, $8.

Best carving in stone, N. Steiner, Toronto, $8 and diploma; 2nd do, John Walker, Hamilton, $4.

Best monumental head-stone, (price and design considered,) James Pollock, Toronto, $6; 2nd do, J. Pollock, Toronto, $4.

Best modelling in plaster, J. G. Dow, Hamilton, $8.

Best engraving on wood (block with proof) E. Roper, Hamilton, $6.

Best lithographic drawing, H. Gregory, Hamilton, $6; 2nd do, Gillespie & Robertson, Hamilton, $4.

Best lithographic drawing, colored, H. Gregory, Hamilton, $6; 2nd do, Fuller & Bencke, Toronto, $3.

Best geometrical drawing of engine or mill-wright work, colored, John Kennedy, Hamilton, $6; 2nd do, F. G. Beckett & Co. do, $4.

Best ornamental penmanship, D. Morgan, Beamsville, $4; 2nd do, John Robertson, Galt, $2.

Best painting, imitation of woods and marbles, George Wait. Hamilton, $6; 2nd do, J. McFarlane, Galt, $4.

Best heraldic painting, John O'Keane, Montreal, $6.

Best specimen of dentistry, T. F. Brown, Dundas, $6.

Best specimen of silversmith's work, C. H. VanNorman, Hamilton, $6.

EXTRAS.—Fuller & Bencke, Toronto, engraving on stone, $4. T. F. Brown, Dundas, vulcanizing machine, $4. A. Witherspoon, Dundas, skeleton time keeper for astronomical purposes, $6. Herman Lohrman, Smithville, regulator clock, $6; pocket chronometer, $4. C. H. VanNorman, Hamilton, patent lever watch movement, $4. David Greenhill, Hamilton, thread winding machine, $2. H. Gregory, Hamilton, lithographic portrait, $6.

CLASS XLII.—CABINET WARE AND OTHER MANUFACTURES, &C.—(120 Entries.)

Judges.—Messrs. George Stephens, Cobourg, W. Bowman, London; William Watt, Brantford.

Best centre table, W. Bevis, Hamilton, $6; 2nd do, James Reid do, $4.

Best drawing room sofa, James Reid, Hamilton, $8.

Best set of drawing room chairs, James Reid, Hamilton, $8; 2nd do, Oshawa Cabinet Manufactory, Oshawa, $5.

Best set of dining room chairs, James Reid, Hamilton, $5.

Best side-board, Oshawa Cabinet Manufactory, $6; 2nd do, James Reid, Hamilton, $4.

Best bedstead, Jas. Reid, Hamilton, $4.

Best specimen of cooper's work, C. Lewis, Salford, $3; 2nd do, Andrew Bridge, West Brook, $2.

Best three wash-tubs, C. Lewis, Salford, $2; 2nd do, do, $1.

Best three wooden pails, C. Lewis, Salford, $2; 2nd do, do, $1.

Best three flour barrels, C. Lewis, Salford, $3; 2nd do, John Stein, Puslinch, $2.

Best 100 feet of machine wrought flooring, McLean & Clark, Puslinch, $4.

Best picture frame, veneered, W. Bevis, Hamilton, $6; 2nd do, Robert O'Brien, do, $4.

Best veneers from Canadian woods, C. H. Rose, Hamilton, $6.

Best collection of specimens of turning in wood, John Beaty, Streetsville, $6; 2nd do. Wm. Bevis, Hamilton, $4.

Best 12 turned broom handles, W. Tait & Co., Orford, $2.

Best 6 corn brooms, M. B. Beasley, Hamilton, $2; 2nd do, Allen Easson, do, $1.

Best 6 zinc covered wash boards, W. Hearle, Beamsville, $3; 2nd do, O. T. Bevan, Yorkville, $2.

Best 6 specimens of willow ware, T. Poilecki, East Flamboro', $3; 2nd do, Jacob & Compton, Dundas, $2.

SPECIAL.

Best set of dining room furniture, J. Reid, Hamilton, $15.

Best set of bed room furniture, J. Reid, Hamilton, $10.

Best Canadian woods, suitable for the purposes of wood engravers, block engraved, with proof, E. Roper, Hamilton, $5.

Extras.—A. Booker, Hamilton, Canadian willow cricket bats, $1. Richardson & Hilliker, Otterville, patent roofing and siding, $3. Miss Shaver, Ancaster, picture frame, $2. McLean & Clark, Puslinch, specimens of machine planing, $3; specimen clear pine, $3. W. Tait & Co., Orford, mop sticks of brass, $2; do, of iron, $1. Gottgetreu Fischer, Morriston, cabinet of Canadian wood, $10 and silver medal. Wilkinson Bros., West Flamboro', cut shingles, $3. J. C. Chilman, Hamilton, model gun and carriage, $2. Salem Eckhardt, Markham, burgler's alarm, $8. Mrs. C. Kimbly, Clarke, picture frame, $1. John Beaty, Streetsville, specimens turning in ivory, $4. Jas. Thompson, Mount Vernon, matches, $2. Thos. McIlroy, Brampton, invalid bedstead, $6 and silver medal; swing cradle, $2. H. Leonard, Kingston, collection Canadian woods, $2. Charles Heise, Preston, specimens of wave moulding, $10. R. Strickland, Douro, canoe, $5. Oshawa Cabinet Manufacturing Co., Oshawa, pier table, $5; dressing table, $4. Geo. Curran, Hamilton, tool chest, $4. M. B. Beasley, Hamilton, corn hearth brooms, $1. P. Rapp, Hamilton, copal varnishing on Canadian walnut, $5. A. Booker, Hamilton, willow cricket bats, $1; do, cane handles, $1. W. A. Venater, Dundas, turning in ivory, $2; newell post, $2.

Remarks by Judges.—In submitting our report we beg to call attention to the following, viz: the necessity of some better mode of classifying the goods. We found in our search after the articles we had to judge, (for it was a search, they being scattered over all parts of the building and grounds,) that articles of the same description were placed in different classes. We might enumerate the following, viz: washing machines, specimens of Canadian woods, picture frames, &c. We also found that in many instances the same party entered five or six articles exactly the same but differently numbered, taking up room and deceiving the judges; for if we had not made inquiry we might have given two prizes to the same individual, supposing there had been competition. We would also call attention to the fact that different articles were entered in two classes, or for two separate prizes, say one for veneered work, and one as a complete piece of furniture, which would not be perfect without the veneer. Some of the special prizes are in our opinion too high in comparison with some other prizes in the list. We would specify section 36 in special list. We have taken the liberty of reducing it from $15 to $5, judging this ample for the sample shown. The whole of which we respectfully submit.

Class XLIII.—Carriages, Sleighs, &c.

(47 Entries.)

Judges.—Messrs. M. C. Lutz, Galt; A. G. McCracken, Newmarket; W. McBride, London.

Best bent shafts, half dozen, R. C. Jardine, Greensville, second prize, $2.

Best buggy, double seated, McCabe & Co. Hamilton, 2nd prize, $4.

Best buggy, single seated, Matthew Kemp, Dundas, $5; 2nd do, McCabe & Co., Hamilton, $3.

Best two horse pleasure carriage, J. Hagerman, Oakville, $10; 2nd do, McCabe & Co., Hamilton, $6.

Best one horse pleasure carriage, Matthew Kemp, Dundas, $8: 2nd do, Samuel Lake, Newburgh, $5.

Best child's carriage, (price considered,) McCabe & Co., Hamilton, $3; 2nd do, Samuel Lake, Newburgh, $2.

Best dog cart, single, McCabe & Co., Hamilton, $5.

Best two pair of carriage hubs, Robert C. Jardine, Greensville, $3.

Best two horse pleasure sleigh, D. Ford, Whitby, $8.

Best one horse pleasure sleigh, Samuel Lake, Camden East, $6.

Best pair of steel carriage springs, Wood & Leggett, Hamilton, $3; 2nd do, Thomas Todd, Galt, $2.

Best pair of carriage wheels (unpainted,) Thomas Todd, Galt, $4; 2nd do, McCabe & Co., Hamilton, $3.

Extras.—McCabe & Co., Hamilton, trotting sulky, $4; Matthew Kemp, Dundas, hand-made spokes, $2.

Class XLIV.—Furs and Wearing Apparel.—(28 Entries.)

Judges—Geo. Harcourt, Toronto, and Wm. Roberts, Dundas.

Best business coat, Lawson Brothers & Co., Hamilton, $4.

Best fur gloves, mits or gauntlets, P. Hinman, Haldimand, $3.

Best fur sleigh robe, J. Hagerman, Oakville, $4; 2nd do, do, $3.

Best gloves and mits, buckskin, Green, DeWitt & Co., Montreal, $2; 2nd do, do, $1.

Best gloves and mits of any other leather, Green, DeWitt & Co., Montreal, $2; 2nd do, do, $1.

Best gloves and mits, lined with wool, Green, DeWitt & Co., Montreal, $2.

Best pantaloons, Lawson Brothers & Co., Hamilton, $3.

CLASS XLV.—FINE ARTS.—(262 Entries.)

Judges.—Messrs. Thos. Reynolds, W. M. Wilson, Simcoe; and Hon. G. W. Allan, Toronto.

Professional List—Oil.

Best animals (grouped or single,) Robert Whale, Burford, $12; 2nd do, W. N. Cresswell, Harpurhey, $6.

Best historical painting, Canadian subject, Alexander Davidson, Hamilton, $12; 2nd do, Robert Whale, Burford, $6.

Best landscape, Canadian subject, Robert Whale, Burford, $12; 2nd do, A. Davidson, Hamilton, $6.

Best marine painting, Canadian subject, W. N. Cresswell, Harpurhey, $12; 2nd do, do, $6.

Best other original composition, W. N. Cresswell, Harpurhey, $12; 2nd do, Robert Whale, Burford, $6.

Best portralt, Robert Whale, Burford, $10; 2nd do, do, $6.

Water Colors.

Best landscape, Canadian subject, John H. Caddy, Hamilton, $8; 2nd do, do, $5.

Best marine views, Canadian subject, J. H. Caddy, Hamilton, $8; 2nd do, do, $5.

Best other original composition, Miss Gibbon, London, $8; 2nd do, John H. Caddy, Hamilton, $5.

Pencil, Crayon, &c.

Best pencil drawing, Miss Wilmott, Toronto, $5; 2nd do, Miss Gibbon, London, $3.

Best pen and ink sketch, Mrs. C. Walker, St. Thomas, $5.

Amateur List.—Oil.

Best animals (grouped or single,) Mrs. Gourlay, Barton Lodge, Hamilton, $8; 2nd do, Robert Whale, Burford, $5.

Best landscape, Canadian subject, W. L. Kinmond, Dundas, $8; 2nd do, Thomas Connor, Elora, $5.

Best marine painting, Canadian subject, J. H. Whale, Burford, $5.

Best portrait, J. H. Whale, Burford, $5; 2nd do, Mrs. L. J. Olmstead, Saltfleet, $3.

In Water Colors.

Best flowers, Mrs. A. McFarland, Thorold, $4; 2nd do, Mrs. A. Wightman, Toronto, $3.

Best landscape, Canadian subject, Edward Roper, Hamilton, $6; 2nd do, William Ambrose, Hamilton, $4.

Best marine view, Canadian subject, Edward Roper, Hamilton, $6; 2nd do, Edward Roper, Hamilton, $4.

Best portrait, Miss Martha Thompson, Toronto, $5; 2nd do, Mrs. Hurlburt, Hamilton, $3.

Pencil, Crayon, &c.

Second best colored crayon, Miss Boice, Hamilton, $3.

Best crayon drawing, Miss M. Lindsay, Caledonia, $4.

Best pen and ink sketch, Mrs. C. Walker, St. Thomas, $4; 2nd do, John Gouinlock, Preston, $3.

Best crayon portrait, Miss M. Thompson, Toronto, $4.

Photography.

Best collection of ambrotypes, Jas. Rawe, Toronto, $6.

Best collection of plain photographs, G. C. Pell, Hamilton, $6; 2nd do, Robert Milne, Hamilton, $4.

Best collection of colored photographs, T. Fitzgerald, Toronto, $6.

Best photograph portrait in oil, Carson Bros.. Toronto, $6; 2nd do, Robert Milne, Hamilton, $4.

EXTRAS.—Miss Gibbon, London, paintings of Canadian butterflies, from nature, $5. John O'Keane, Montreal, fruit in oil, $4.

REMARKS BY JUDGES.—In making their awards the judges in Class 45 beg to remark that their labors have been rendered most laborious and unsatisfactory to themselves, by reason of the total absence of any arrangement of the subjects requiring their examination, which were found mixed together in a state of confusion. Much time has been consumed in fruitless efforts to discover some of the objects entered in the book. The judges wish to refer to these defects, because as they have in several cases

not been able to find the whole of the objects entered in the book, they may in awarding the prizes have done injustice, and also with a view to some arrangement being made on future occasions for the prevention of similar defects. The judges would also most strongly recommend that all pictures sent in as "original compositions," and being nothing more than servile copies of old drawings or engravings, should *not be received;* and they would further suggest that some positive rule should be adopted for the future guidance of the judges, authorising them to withhold premiums altogether, even in cases where there is no competition, should they deem the picture entered not of sufficient merit to receive one.

CLASS XLVI.—GROCERIES, PROVISIONS, OILS, &C. (194 Entries.)

Judges.—Messrs. R. Davis, Toronto, and B. Clement.

Best barley, pot and pearl, D. Campbell, Glengary, $3; 2nd do, Robert King, Hamilton, $2; do, extra, $1.

Best collection of biscuits, J. C. Chilman, Hamilton, $4; 2nd do, W. Christie, Toronto, $2.

Best collection bottled fruit, Mrs. John Triller, Wellington Square, $3.

Best collection of bottled pickles, Mrs. John Triller, Wellington Square, $3; 2nd do, Henry Hannon, Barton, $2.

Best buckwheat flour, John Morden, West Flamboro', $3; 2nd do, H. P. Zimmerman, Nelson, $2.

Best collection of candles, John A. Montague, Dunville, $3.

Best cayenne pepper, one jar, (from capsicums grown in the Province,) W. Nicolls, Hamilton, $2: 2nd do, H. Girouard, Hamilton, $1.

Best 20 lbs. of chicory, D. Crawford & Co., Toronto, $4; 2nd do, Samuel Cann, Hamilton, $2.

Best collection of confectionery, W. Eccleston, Hamilton, $5.

Best sample of wheat flour, E. A. McNaughton, Newcastle, $6; 2nd do, D. M. Osborne, Hamilton, $4.

Best glue, 14 lbs., U. Brinzer, Berlin, $4; 2nd do, do, $2.

Best Indian corn meal, F. G. Nash, Niagara, $3; 2nd do, McLean & Clark, Puslinch, $2.

Best collection of medicinal herbs, roots and plants, native growth, H. Girouard, Hamilton, $8; 2nd do, W. McGregor, Lowville, $4.

Best jar of mustard, D. Crawford & Co., Toronto, $3; 2nd do, H. Girouard, Hamilton, $2.

Best sample of oatmeal, James Wilson, Fergus, $3; 2nd do, Jas. Wilson, Fergus, $2.

Best coal or shale oil, J. M. Williams, Hamilton, $3: 2nd do, do, $2.

Best preserves, six kinds, H. Hannon, Barton, $3; 2nd do, J. S. Wetenhall, Hamilton, $2.

Best soap, box 28 lbs., D. Morton, Hamilton. $3; 2nd do, do, D. Morton, do, $2.

Best collection of assorted soaps, R. Pomeroy, Toronto, $5; 2nd do, J. J. Montague, Dunnville, $3.

Best corn starch, 12 lbs., E. A. McNaughton Newcastle, $3.

Best flour starch, 12 lbs., E. A. McNaughton, Newcastle, $3.

Best potato starch, 12 lbs., George Colcleugh, Ayr, $3.

Best maple sugar, 20 lbs., D. Tiffaney, Delaware, $4; 2nd do, W. Phin, Eramosa, $2.

Best tobacco, 14 lbs., Canadian manufacture, H. Girouard, Hamilton, $4.

Best collection of dyeing or coloring substances, the products of Canada, R. S. Evans & Co., Hamilton, $15.

EXTRAS.—Stephen King, Glanford, soft soap, $1; loaf of bread, $1; W. C. Ecclestone, Hamilton, bride cake, $2; show cake, $2. W. Robertson, Fergus, barrel groats, $2. John Campbell, Hamilton, cured pork and hams, $2. Miss S. A. Jones, Blooming Grove, Jordan, apple brandy, $1. McLean & Clark, Puslinch, split peas, $1. Wm. Freeman, Hamilton, syrup from Chinese sugar cane, $2; dried cherries and plums, $1. E. A. McNaughton, Newcastle, arrow root, $2. Robert Pomeroy, Toronto, refined whale and lard oil, $4. John C. Kilborn, Beamsville, home-made wine, $3. John Nasmith, Toronto, assortment of biscuits, $3. S. Cann, Hamilton, spices, $2. R. Bickle, Dundas, specimens of ale, $3. Luther Grover, Hamilton, cigars of Canada growth and manufacture, $2. Geo. Rose, Preston, barrel lager beer, $2. James Kennedy, Hamilton, patent medicines, $3. J. C. Kemp, Beamsville, pea meal, for soup, $1.

CLASS XLVII.—INDIAN PRIZES.

(4 Entries.)

Judges.—Dr. Hurlburt, Hamilton, and Dr. Craigie, do.

Best pair snow shoes, R. C. McCuaig, Hamilton, $3.

EXTRAS.—J. F. Jones, Brantford, sundry articles, $3.

CLASS XLVIII.—LADIES' DEPARTMENT.

(535 Entries.)

Judges.—Mrs. Hurlburt, Hamilton; Mrs. Beatty, Cobourg; Mrs. Burnham, Cobourg; Mrs. Carroll, Woodstock; and Mrs. G. Munro, Toronto.

Best bonnet of Canadian straw, Miss Morgan, Scarborough, $4; 2nd do, A. Affleck, Middleville, $3.

Best specimen of braiding, Miss J. Graham, Streetsville, $4; 2nd do, Mrs. Bates, Hamilton, $3.

Best specimen of crochet work, Miss E. Moore, London, $4; 2nd do, Mrs. W. Griffin, Hamilton, $3.

Best specimen of embroidery in muslin, Mrs. A. Taylor, York, Grand River, $4; 2nd do, Mrs. W. H. Imlack, Stratford, $3; 3rd do, Mrs. G. F. Holland, Barton, $2.

Best specimen of embroidery in silk, Miss Agnes Gemmell, Etobicoke, $4; 2nd do, do, $3.

Best specimen of embroidery in worsted, Mrs. Jno. Young, Dundas, $4; 2nd do, Mrs. John Brown, Hamilton, $3.

Best three pairs of gloves, P. Hinman, Haldimand, $3.

Best specimen of guipure work, Miss Harriet Bidwell, Colborne, $4; 2nd do, Mrs. G. F. Holland, Barton, $3.

Best hat of Canadian straw, Mrs. E. Swamill, Hamilton, $4; 2nd do, do, $3.

Best fancy knitting, Miss Racey, Hamilton, $4; 2nd do, Miss M. Strickland, Oshawa, $3.

Best specimen of lace work, Miss Harriet Bidwell, Colborne, $4; 2nd do, Mrs. Colbeck, Hamilton, $3; 3rd do, Miss Gilkinson, St. Catherines, $2.

Best three pairs of woollen mittens, E. Jackson, Kingston Township, $3; 2nd do, L. Salmon, Binbrook, $2.

Best specimen of ornamental needle work, Mrs. Bates, Hamilton, $5; 2nd do, Miss J. A. Ramsay, Kingston, $3.

Best specimen of fancy netting, Miss A. Strickland, Oshawa, $4; 2nd do, Miss Applegarth, Hamilton, $3.

Best specimen of quilts in crochet, Miss H. Brecon, Nelson, $4; 2nd do, Miss J. Eckholt, Hamilton, $3.

Best specimen of quilts in knitting, Mrs. W. Alcorn, Port Hope, $4; 2nd do, Mrs. M. Kerr, Hungerford, $3.

Best specimen of quilts in silk, Miss Morgan, Scarboro', $4; 2nd do, do, $2.

Best specimen of quilts, in piece work, Mrs. John Cramm, Hamilton, $4; 2nd do, Mrs. C. T. Hill, Esquesing, $3.

Best specimen of gentlemen's shirts, Mrs. E. Jackson, Kingston, $3; 2nd do, Mrs. E. Martle, Greensville, $2.

Best three pairs of woollen socks, Mrs. E. Haight, Mount Pleasant, $3; 2nd do, Mrs. P. Hinman, Haldimand Township, $2.

Best two pairs of woollen stockings, Mrs. Haight, Mount Pleasant, $3; 2nd do, do, $2.

Best specimen of tatting, Miss Hamilton, Dundas, $4; 2nd do, Miss Bidwell, Colborne, $3.

Best specimen of wax fruit, Mrs. T. Sparrow, Galt, $6; 2nd do, Miss Niven, Niagara, $4.

Best specimen of wax flowers, Miss Niven, Niagara, $6; 2nd do, Miss Carmichael, Fingal, $4.

Best specimen of worsted work, Mrs. Dr. Taylor, Hamilton, $4; 2nd do, Mrs. Colbeck, Hamilton, $3.

Best specimen of worsted work, (raised,) Miss J. A. Ramsay, Kingston, $4; 2nd do, Miss N. Hoover, Ancaster, $3.

EXTRAS.—Miss Isabella Graham, Streetsville, wreath of ornamental hair work, $2; wax shells, $5. Miss Sophia Graham, Streetsville, wreath of hair flowers, $1. Mrs. Gouinlock, Preston, wax figures, $2; rice paper flowers, $2. Mrs. G. F. Holland, Barton, $1. Geo. Fokes, Hamilton, specimens of work in hair, $3. Mrs. H. J. Richards, Hamilton, beadwork collar, $1. Miss Applegarth, Hamilton, embroidered cap, $1; specimens of sea weed, $2. Miss S. J. Kerr, Hamilton, paper flowers, $2. Mrs. J. Pierce, Niagara Falls, bead work, $2. Mrs. C. McQuesten, vase of crystalized grasses, $2. Mrs. M. Phillips, Hamilton, potichomanié vases, $1. Miss M. Lawlor, Hamilton, embroidered leather work, $1. Miss E. Collar, Hamilton, wax flowers, $4; paper flowers, $2. Miss E. Strickland, Oshawa, bead work, $1. Miss Carmichael, Fingal, fancy skirt, $1. Miss A. Rodgerson, Hamilton, rustic basket, $1. Mrs. Coulson, Greensville, grass

flowers, $3. Mrs. Kimbley, Newcastle, picture frames, $2. Mrs. Chapman, Brantford, feather flowers, $4.

CLASS XLIX—MACHINERY, MODELS, CASTINGS, TOOLS, &C.—(140 Entries.

Judges.—Messrs. John Doty, J. Crossen, and T. Northy.

Best iron castings for general machinery, John Gartshore, Dundas, $6.

Best cast wheel, spur or bevel, not less than 50 lbs weight, John Gartshore, Dundas, $4.

Best fire engine, A. Parrott, Hamilton, $15.

Best model in metal, of engine, millwright's work, or machinery, Arthur Ayers, G. W. R. R., $8; 2nd do, Alexander Calder, London, $5.

Best steam engine, in operation on the ground, John Gartshore, Dundas, $40.

Best steam engine, 4 to 6 horse-power, portable, open to foreign competition, F. G. Beckett, Hamilton, $30.

Best specimen of valves and gearing for working steam expansively, either in model or otherwise, (principle of working to be the point of competition,) R. Eaton, Hamilton, $12 and gold medal.

Best two cast jaws and boxes for cars, R. Eaton, Hamilton, $4.

Best cooking stove, with furniture, John H. Roper, Hamilton, $5; 2nd do, D. Moore & Co., Hamilton, $3.

Best hall stove for coal, Mrs. Ruth Adams, Acton, $4.

Best hall stove for wood, Gurney & Carpenter, Hamilton, $4.

Best parlor stove for wood, D. Moore & Co., Hamilton, $4.

Best parlor grate, Gurney & Carpenter, Hamilton, $5.

Best earth auger, Hiram Leonard, Kingston, $2.

Best six narrow axes, J. Hourigan, Dundas, $4; 2nd do, S. J. Tongue & Co., Ottawa, $3.

Best blacksmith's bellows, James Dallyn, Hamilton, $3; 2nd do, James Dallyn, Hamilton, $2.

Best assortment of edge tools, S. J. Tongue & Co., Ottawa, $12; 2nd do, J. Hourigan, Dundas, $8.

Best metal pump, F. G. Beckett & Co, Hamilton, $4.

Best platform scales, Carpenter, Ware & Co., Hamilton, $4; 2nd do, Carpenter Ware & Co., Hamilton, $2.

Best counter scales, Carpenter, Ware & Co., Hamilton, $3; 2nd do, Carpenter, Ware & Co., $2.

SPECIAL.—Best engine in operation on the ground, being new application of motive power, or application of new motive power, Charles Pierson, Niagara, $30.

Best newspaper addressing machine, in operation, James A. Campbell, Georgetown; do, (by special committee,) Rev. Jas. Spencer, Brampton, gold medal.

EXTRAS.—John Gartshore, Dundas, dry sand casting, locomotive cylinder, $4; dry loam casting, still for manufacturing coal oil, $2; iron water wheel, $4; run of mill stones, $4; bran duster, $2; grain separator, $2; machine for biscuit making, $6; coffee mill, $2. Carpenter Ware & Co., Hamilton, improved scales, $1; other scales, $1. Gurney & Carpenter, Hamilton, agricultural furnace, $2; thimble skeins and waggon boxes, $2; lawn vase, $1. G. Campbell, Toronto, portable forge, $3. John Cunningham, Kingston, family sewing machine, $5. Mrs. Ruth Adams, Acton, baking oven, $3. Fowlis & Levy Peterboro', claw hatchet, $1; broad axe, $2; ship carpenters' axe, $2; carpenters' adzes, $3. B. F. Smith, Hamilton, moulding machine, $2. C. Meadows, East Zorra, improved sawing machine, diploma and $10. L. N. Soper, Woodstock, sewing machine, $2. A Kerby, Brantford, self acting car coupling, $2. C. W. Oliver, Clifton, sewing machine, $3; do, $3; do, $3. J. Marks, Hamilton, apparatus for impregnating steam, air, gas, or vapor, with lubricating material, $5 and diploma. D. More & Co., Hamilton, set of Japanned grain measures, $1; pressed tin ware, $1. R. Eaton, Hamilton, locomotive boiler, $25; engine frame, $10; wrought iron wheel, $5; do, $3; do, $2; axle box, $2. Wm. Fryer, Hamilton, watch wheel cutting machine, $2; jewelling lathe, $2. E. J. Nagle, Montreal, sewing machine, $3. S. Linfield, Barton, assortment of hinges, $4. Louis Cohn, Toronto, self-binder for papers, $4; Metaligraphic gilt signs, $2; Specimens artificial maple leaves, $1.

REMARKS OF JUDGES.—The judges in class 49 cannot refrain from expressing their admiration of the different articles entered in the locomotive engine department, consisting in part of the following articles: three wrought iron wheels, and one wrought iron locomotive engine frame forged under the superinrindence of Mr. James Stephens,

at the Great Western locomotive works, Hamilton; one locomotive boiler of steel plates, very heavy, well designed and double or chain rivetted, the first of its kind ever made, manufactured under the superintendence of Mr. John McIntyre at the same works; an apparatus invented and manufactured by Mr. Joseph Marks, for impregnating steam, air, gas, or vapor, with a lubricating material in a very finely divided state, for the lubricating of valves, pistons, piston rods and valve spindles, &c., of locomotive and other engines, by which means a very great reduction will be made in the wear and tear of surfaces working in contact with steam; also an improved valve motion, which we regard as an important improvement on the common link motion, invented and manufactured under the superintendence of Mr. Richard Eaton, local superintendent of the Great Western Railway, assisted by Mr. Forsyth. The character of the whole work is such as to reflect great credit upon the managers of the Great Western Railway for their spirit of enterprise in the encouragement of the ingenuity and skill displayed in all the work exhibited by them.

CLASS L.—METAL WORK, PLAIN AND ORNAMENTAL.—(89 Entries.)

Judges.—Murray Anderson, London; Robt. Melvin, and Alex. Wood, Smiths' Falls.

Best specimen tin-smith's work, D. Moore & Co., Hamilton, $5; 2nd do, do, do, $3;

Best iron bedstead, John Deans, Hamilton, $3.

Best collection of cast-steel files, Hays & Hart, Hamilton, $3; 2nd do, W. Kinmond, Dundas, $2.

Best set of horse shoes, James Berry, Nelson, $3; 2nd do, W. Weeks, Woodstock, $2.

Best iron work from the hammer, ornamental, W. Millford, Ottawa, $5; 2nd do, John Deans, Hamilton, $3.

Best iron fire proof safe door, (price considered,) J. & J. Taylor, Toronto, $5: 2nd do, J. & J. Taylor, Toronto, $3.

Best malleable iron from scrap iron, A. C. Chewett & Co., Kingston, $6.

Best cut nails, 20 lbs., Mitchell Murray, Hamilton, $5; 2nd do, Mitchell Murray, Hamilton, $3.

Best refrigerator, (price considered,) Jas. McIlroy, St. Catherines, $4, and diploma.

EXTRAS.—Wm. Hearle, Beamsville, fire proof stove pipe tube, $3. H. & R. Young, Hamilton, assortment of finished brass work, $5. E. McGivern, Hamilton, electro-plated spoons, $3; do, knives and forks, $2; plated stirrups, $2; bits, $2; hames, $3; pole cross, $2; silver shell rosettes, $2; silver plated harness buckles, $2. W. C. Morrison, Toronto, silversmith's work, $6. Piper & Kendall, Toronto, lightning conductors, $2.

CLASS LI.—MISCELLANEOUS—(24 Entries)

Judges.—Messrs. J. Wallace, Whitby, and J. McIntyre, Hamilton.

Best assortment of brushes, R. Huston, Hamilton, $5; 2nd do, A. Green, Hamilton, $3.

Best specimens of varnishes, Canadian made, E. Atwater & Co., Montreal, $4.

Best model of a steam vessel, S. Symons, Hamilton, $4; 2nd do, S. Symons, Hamilton, $3.

Best model of a sailing vessel, J. Bulmer, Brantford, $4; 2nd do, S. Symons, Hamilton, $3. Extra—model yacht, —— ——, $4.

EXTRAS.—Norris Black, Toronto, artificial limbs, $4. Robert O'Brien, Hamilton, Captain's gig, 22 feet in length, $4. Hugh McKee, Norwich, collection of Canadian Indian antiquities, $3. Canada Powder Company, Hamilton, sporting gunpowder, $3; blasting powder, $2. John Symons & Son, Hamilton, model life boat, $3. John Condell, Brockville, artificial limbs, $6.

REMARKS BY JUDGES.—On several of the articles we have examined, we find the exhibiters' names inscribed. This is a practice that cannot be too strongly condemned; and we trust the directors will take steps to prevent such a course being followed in future, at least until the judges have examined and awarded the several prizes.

CLASS LII.—MUSICAL INSTRUMENTS. (26 Entries.)

Judges.—Messrs. A. W. Everett, Dundas; Professor Chalaupka, Cobourg; and J. D. Humphreys, Toronto.

Best harmoniums, T. White, Hamilton, $10.

Best melodeon, T. White, Hamilton, $6.

Best square piano, C. L. Thomas, Hamilton, $15, and silver medal; 2nd do, J. Thomas & Co., Toronto, $10.

Best cottage piano, John Knott, Hamilton, $15; 2nd do, do, $10.

Best collection of musical instruments, J. Thomas & Co., Toronto, $25, and silver medal.

EXTRA.—B. F. Mosher, Nelson, assortment of dulcimers, $4.

REMARKS OF JUDGES.—The judges on piano fortes and musical instruments, have great gratification in noticing the very marked improvement made in the manufacture of piano fortes during the past year. With the exception of one from Hallett & Davis, Boston, the whole of those on exhibition were made in Canada, and reflect great credit upon the skill and taste of the different exhibiters, In fact the instruments for beauty of tone, as well as exterior and interior finish, will bear favorable comparison with many of those imported from the United States at a large cost. Ere long there will be no occasion to go beyond "home manufacture" in this department.

CLASS LIII.—NATURAL HISTORY.
(50 Entries.)

Judges.—Messrs. T. J. Cottle, Woodstock; Dr. Craigie, Hamilton, and W. N. Alger, Brantford.

Best collection of stuffed birds and animals, of any country, E. Roper, Hamilton, $25.

SPECIAL.—Best collection of stuffed mammalia of Canada, classified, and common and technical names attached, S. W. Passmore, Toronto, $20.

Best typical collection of stuffed birds of Canada, classified and common and technical names attached, Thos. McIlwraith, Hamilton, $40; 2nd do, P. H. Gibbs, Oshawa, $20; 3rd do, S. W. Passmore, Toronto, $10.

Best collection of reptiles of Canada, (stuffed or preserved in spirits,) classified, and common and technical names attached, S. W. Passmore, Toronto, $10.

Best collection of live fishes, with names furnished—the prize offered, $40, divided between Jacob Binkley, Ancaster, $20, and John Dynes, Hamilton, $20.

Best collection of native fishes, (stuffed or preserved in spirits) with common and technical names attached, S. W. Passmore, Toronto, $15.

Best collection of native insects, classified, and common and technical names attached, David Crombie, Hamilton, $15; 2nd do, J. E. Reginald Gourlay, Barton Lodge, Hamilton, $8.

Best collection of the woods of Canada, cut in sections, and showing the bark—the prize of $30 divided between J. Lyons, West Flamboro', $10; McClean & Clark, Puslinch, $10; David Collins, Port Credit, $10; the specimens being nearly equal.

Best collection of woods of Canada, in plank or boards, 3 feet long, one half the length to be polished, prize divided between McLean & Clark, Puslinch, $15, and H. Leonard, Kingston, $15.

EXTRAS.—Samuel Passmore, Toronto, for his whole collection of mammalia, birds, reptiles, and fishes, silver medal. Judge Logie, Hamilton, collection of native plants and flowers, $10; James Granfall, Hamilton, bird and cage, $1.

NOTES BY JUDGES.—Several of the prizes in this class are reduced from the amounts offered in the list, the amounts offered being, in the opinion of the Judges, too large for the specimens exhibited. Several of the special prizes offered have also been divided between two or more exhibiters in a section, the specimens offered in such cases being equal or nearly so. Section 3, stuffed birds of Canada, had eight entries, and some very fine and extensive collections, particularly No. 2, (McIlwraith's) which contained over 180 specimens, and No. 3, (Gibbs') containing over 90 specimens. No. 5, (Passmore's) contained 65 specimens. Section 5, "live fishes;" the Judges are not ashamed to confess their inability to decide in this class on animals imperfectly seen in the water. If a prize of this kind is again offered they would suggest that it should be for fishes raised by artificial means. The Judges deem it but a matter of justice to Mr. Binkley to state that all his fish: black bass, rock bass, pike, suckers, perch, shiners, and five other kinds, were bred in a private pond, and were a very excellent collection of fish. The other collections, embracing some twenty varieties, were also excellent. There were sturgeon, herring, white-fish, pickerel, pike, bass, (several varieties) &c. In the "extras" the only really valuable entry is a collection of very fine botanical specimens, (Judge Logie's) carefully and beautifully preserved and correctly named, for which an ample prize should be given.

CLASS LIV.—PAPER, PRINTING, BOOKBINDING, &C.—(61 Entries.)

Judges—Messrs. E. McPhail, Toronto; J. Somerville, and J. Edwards, Toronto.

Best specimen of blank book bookbinding, Brown & Brothers, Toronto, $5; 2nd do, Barnes & Co., Hamilton, $3.

Best specimen of ornamental letter-press book-binding, Brown & Brothers, Toronto, $5; 2nd do, Gillespie & Robertson, Hamilton, $3.

Best specimen of writing ink, W. Wells, Barton, $2.

Best specimen of plain letter-press printing, Gillespie & Robertson, Hamilton, $5; 2nd do, J. Glass, Globe office, Toronto, $3.

Best specimen of ornamental letter-press printing, John Glass, Toronto, $5; 2nd do, do, do, $3.

Best ream of printing paper, J. Buntin & Co., Hamilton, $5; 2nd do, James Buntin & Co., Hamilton, $3.

Best dozen rolls of paper hangings, grounded, (on Canadian paper,) M. Staunton, Toronto, $6.

Best dozen rolls of paper hangings, self-grounded, (on Canadian paper,) M. Staunton, Toronto, $4.

Best specimen of printing type, C. T. Palsgrave, Montreal, $6.

Best ream of writing paper, James Buntin & Co., Hamilton, $5; 2nd do, James Buntin & Co., $3.

Best and cheapest ream of wrapping paper, James Buntin & Co., Hamilton, $4.

Best specimen of stout wrapping paper, James Buntin & Co., Hamilton, $3; 2nd do, James Buntin & Co., $2.

Best specimen of fine wrapping paper, James Buntin & Co., Hamilton, $3; 2nd do, James Buntin & Co., $2.

EXTRAS.—John Glass, Toronto, posters, plain and colored, $3. Gillespie & Robertson, Hamilton, specimens of binding, $2. James Buntin & Co., Hamilton, assortment of blotting papers, $3; assortment of coloured printing papers, $3.

CLASS LV.—POTTERY.—(53 Entries.)

Judges—Messrs. G. K. Chisholm, Oakville, and F. Ballantyne.

Best specimens of draining pipes, ordinary kind, different sizes, W. & R. Campbell, Hamilton, $6; 2nd do, Joseph Brown, York Township, $4.

Best 6 specimens of different sized sewerage pipes, stone ware, W. & R. Campbell, Hamilton, $6; 2nd do, Joseph Brown, York Township, $4.

Best water-filterer, W. & R. Campbell, Hamilton, $3; 2nd do, John Burns, York Township, $2.

Best assortment of pottery, John M. Marlatt, Paris, $8; 2nd do, John Burns, York Township, $4.

Best assortment of stoneware, F. B. Goold & Co., Brantford, $8; 2nd do, J. M. Marlatt, Paris, $4.

Best fire-proof tiles, Isaac Mills, Hamilton, $5; 2nd do, Isaac Mills, Hamilton, $3.

Best collection of the various clays of the Province, adapted to the manufacture of pottery, tiles, and stoneware, with specimens of articles manufactured therefrom, W. & R. Campbell, Hamilton, $25.

Best dozen hollow bricks for building purposes, W. & R. Campbell, Hamilton, $10.

EXTRAS.—Jos. Close, Woodstock, pressed brick, $4. J. M. Marlatt, Paris, earthenware, $5. Daniel New, Hamilton, bricks, $5. W. &. R. Campbell, flower pot vases, $5; chimney tops, $3; Bath bricks, $2. J. Brown, Carlton, York Township, fire bricks, $2; patent clay stove lining, $2. Daniel Campbell, Glengary, red bricks, $3. Alfred Little, Hamilton, pressed bricks, $5. Benjamin Walton, Toronto, roofing slates, $5. James New, Hamilton, white pressed bricks, $4.

CLASS LVI.—SADDLERY DEPARTMENT.
(72 Entries.)

Judges—Messrs. D. McKay, Brantford; Thomas Morrow, and John Douglass.

Best set of double carriage harness, John Beeker, Port Dover, 2nd prize, $5.

Best set of single carriage harness, E. McGivern, Hamilton, $6; 2nd do, E. McGivern, Hamilton, $4.

Best set of team harness, James Jolly, Hamilton, $5.

Best lady's saddle, James Jolly, Hamilton, $6; 2nd do, W. Steward, Jr., Toronto, $4.

Best gentleman's saddle, W. Steward, Jr., Toronto, $6; 2nd do, Alexander Chalmers, Dundas, $4.

Best solid leather trunk, W. Steward, Jr., Toronto, $6; 2nd do, James Jolly, Hamilton, $4.

Best leather covered trunk, (millboard,) James Jolly, Hamilton, $6.

Best leather covered trunk, (wood,) W. Steward, Hamilton, $4.

Best assortment of whip thongs, Isaac McMichael, Hamilton, $3

Best 4 pairs iron carriage or gig hames, E. McGivern, Hamilton, $5; 2nd do, S. Skinner, Gananoque, $3.

Best 3 pairs iron cased team or cart hames, S. Skinner, Gananoque, $5.

Best 6 pairs of wooden team hames, S. Skinner, Gananoque, $5.

Best assorted collection of hames, E. McGivern, Hamilton, $6; 2nd do, $4.

Best cart saddle tree, Wm. Crowe, Guelph, $2.

Best 30 lbs. of belt leather, Wilson & Blyth, Ancaster, $4; 2nd do, James Cairnes, St. Catherines, $2.

Best 3 sides of brown strap, Wilson & Blyth, Ancaster, $4; 2nd do, James Cairnes, St. Catherines, $2.

Best 3 sides of brown bridle, Jas. Cairnes, St. Catherines, $4; 2nd do, Wilson & Blyth, Ancaster, $2.

Best 2 skins of leather for carriage covers, James Cairnes, St. Catherines, $4.

Best dressed deer skin, Henry Ferdinand, Waterloo, $2; 2nd do, Green, DeWitt & Co., Montreal, $1.

Best 3 sides of harness leather, W. M. Macklem, Chippewa, $4; 2nd do, Thomas Howe, Dundas, $2.

Best hides of lacing leather, Jas. Cairnes, St. Catherines, $2.

Best patent leather for carriage or harness work, 20 feet, James Carines, St. Catherines, $6.

Best 3 sides skirting for saddles, Wilson & Blyth, Ancaster, $5; 2nd do, Thomas Howe, Dundas, $3.

Extras.—W. M. Macklem, Chippewa, 3 sides of bassett or unblacked harness leather, $2. Jas. Jolley, Hamilton, brown leather gig harness, $2. Green, DeWitt & Co., Montreal, dressed kid, $1. J. W. H. Schneider, Hamilton, model safety check for vicious horses, $2. C. Doering, Phillipsburgh, black bridle leather, $2; grain blacked calf skins, $2.

Class LVII.—Shoe & Boot Department.

(67 Entries.)

Judges.—Messrs. Alex. Gemmell, Toronto; John Billington, and David Abel.

Best pair of lady's Balmoral boots, S. Sims, Toronto, $3.

Best pair of lady's cloth boots, S. Sims, Toronto, $3.

Best pair of lady's kid slippers, S. Sims, Toronto, $2.

Best pair of gentleman's lace boots, (sewed,) S. Sims, Toronto, $4.

Best pair of gentleman's lace boot's (pegged,) S. Sims, Toronto, $3.

Best pair of Wellington boots (sewed,) S. Sims, Toronto, $4; 2nd do, C. McCabe, Paris, $3.

Best assortment of boot and shoe makers' lasts and trees, Matt. Selway, Toronto, $6; 2nd do, M. Young, Dundas, $4.

Best assortment of shoe pegs, G. Colcleugh, Ayr, $3; 2nd do, M. Young, Dundas, $2.

Best three morocco calf skins, James Cairnes, St. Catherines, $4.

Best three calf skins, W. M. Macklem, Chippewa, $4; 2nd do, Thomas Howe, Dundas, $2.

Best three skins of cordovan, Thomas Fowke, Darlington, $4; 2nd do, James Cairnes, St. Catherines, $2.

Best three dressed dog skins, Thomas Fowke, Darlington, $4; 2nd do, James Cairnes, St. Catherines, $2.

Best three sides of kip skin, Thomas Howe, Dundas, $4; 2nd do, Thomas Fowke, Darlington, $2.

Best 20 feet of patent leather for bootmakers, J. Millbourne & Co., Oakville, $6; 2nd do, James Cairnes, St. Catherines, $4.

Best three sides of sole leather, Thomas Howe, Dundas, $4; 2nd do, J. Cairnes, St. Catherines, $2.

Best three sides of upper leather, Chas. Doering, Phillipsburg, $4; 2nd do, W. Dolby, Elora, $2.

Extras.—W. M. Macklem, Chippewa, grain blacked calf skins, $2; grain blacked upper leather, $2; J. Millbourne & Co., Oakville, enameled calf skins, $2. Green, DeWitt & Co., Montreal, wool dressed sheep skins, $2. Thos. Howe, Dundas, grain calf skins, $1; grain upper leather, $1. W. Young, Dundas, crimping machine, $2.

Remarks of Judges.—We would recommend that a distinction be made between oak and hemlock tanned leather. We would also recommend a distinction between spanish and slaughter hides.

Class LVIII.—Woollen, Flax, and Cotton Goods.—(159 Entries.)

Judges.—Messrs. Joseph J. Clutten and George Harcourt, Toronto.

Best 12 bags manufactured from flax, the growth of Canada, D. Campbell, Charlottenburg, $5; 2nd do, Thos. Muir, Grimsby, $3.

Best pair of woollen blankets, B. McNab, Dundas, $8; 2nd do, B. McNab, do, $6.

Best 12 yards woollen carpet, James J. Farley, Thurlow, $8; 2nd do, W. M. Mackem, Hamilton, $6.

Best 12 yards woollen stair carpet, E. Snider, Brockville, $6 and diploma.

Best 12 yards fulled cloth, Frazer & Co., Cobourg, $6 ; 2nd do, Disher & Haight, Grantham, $4.

Best piece woollen Canadian cloth, Hunt & Elliott, Preston, $8 ; 2nd do, Disher & Haight, Grantham, $5.

Best two counterpanes, Hiram Ranney, Dereham, $5 ; 2nd do, D. Campbell, Charlottenbugh, $3.

Best 28 lbs. of flax or hemp cordage, A. Main & Co., Hamilton, $6.

Best pair of woollen factory drawers, J. G. Crane, Ancaster, $4 ; 2nd do, Hodgson & Anderson, Galt, $3.

Best 12 yards of flannel, factory made, Disher & Haight, Grantham, $6 ; 2nd do, do, $4.

Best 12 yards of flannel, not factory made, D. Campbell, Glengary, $5 ; 2nd do, Mrs. Bartholomew, Markham, $3.

Best 12 yards of Kersey for horse clothing, J. J. Farley, Thurlow, $6 ; 2nd do, Hiram Leonard, Kingston, $4.

Best piece of linen goods, D. Campbell, Charlottenburg, $5 ; 2nd do, D. Campbell, Charlottenburg, $3.

Best 12 yards of satinet, Disher & Haight, St. Catherines, $6 ; 2nd do, do, $4.

Best 3 shawls, P. Hinman, Haldimand Township, $5 ; 2nd do, Mrs. Hancock, Hamilton, $3.

Best 6 woollen shirts, factory made, J. G. Crane, Ancaster, $5 ; 2nd do, Hodgson & Anderson, Galt, $3.

Best 3 pairs of knitted woollen stockings, factory made, Hodgson & Anderson, Galt, $4 ; 2nd do, J. G. Crane, Ancaster, $2.

Best 3 pairs of knitted woollen socks, factory made, J. G. Crane, Ancaster, $2 ; 2nd do, Hodgson & Anderson, Galt, $1.

Best 3 pairs of mixed woollen and cotton stockings, factory made, J. G. Crane, Ancascaster, $4.

Best 3 pairs of mixed woollen and cotton socks, factory made, J. G. Crane, Ancaster, $2.

Best 12 yards of winter tweed, Disher & Haight, St. Catherines, $6 ; 2nd do, Disher & Haight, do, $4.

Best samples of twines, linen and cotton, A. Main & Co., Hamilton, $2.

Best 1 lb. of white woollen yarn, Disher & Haight, St. Catherines, $2 ; 2nd do, J. G. Crane, Ancaster, $1.

Best 1 lb. of dyed woollen yarn, J. G. Crane, Ancaster, $2 ; 2nd do, Disher & Haight, St. Catherines, $1.

Special.—Best collection of the fibres of the Province, adapted to manufactures, with information as to cost, &c., Alexander & Co., Norval, $20.

Best assortment of woollen mauufactures, Frazer & Co., Cobourg, $20 ; do, Disher & Haight, St. Catherines, commended.

Best assortment of Guernsey shirts, shawls, stockings, socks, drawers and mits, J. G. Crane, Ancaster, $20 ; do, G. H. Sedden, Barton, commended.

Best assortment of cordage and twines, from Canadian flax or hemp, A. Main & Co., Hamilton, $15.

Extras.—G. H. Sedden, Barton, silk shirts, drawers, stockings, &c., factory made, $3. David Main & Co., Beverly, tartan plaid, $4. James Munro, Thorold, six rolls cotton batting, $2. J. G. Teneyck, Binbrook, men's wool shawl, $1. D. Campbell, Glengary, home-made linen sheets and table cloths, $2 ; two pairs woollen blankets, $4.

CLASS LIX.—FOREIGN MANUFACTURES.

(21 Entries.)

Judges.—Dr. Beatty, Cobourg ; Wm. Edwards, Toronto, and J. E. Pell, Toronto.

Clemons & Reddington, Ogdensburg, N. Y., organ harmonium, certificate for valuable improvement; melodeon with piano attachment, certificate for improvement. C. H. VanNorman, Hamilton, sundry articles of plate and fancy goods, certificate for beautiful collection. Duryee & Forsyth, Rochester, two fire proof safes, diploma for very superior quality. J. Ranney, Rochester, the Horning pump, with India rubber ball valves, diploma. Alfred Hale, Lyons, Wayne County, N. Y., specimens of pure oil of peppermint, very fine quality, honorable mention and certificate.

AMATEUR MUSICAL BANDS.

(Three Bands in Competition.)

Judges.—Messrs. J. D. Humphreys, Toronto, and W. Lawrason, London.

First prize.—The Cobourg Band, H. F. Chalaupka, leader, $150.

Second prize.—Boettger's Band, Hamilton, $100.

Third prize.—The Artillery Band, Hamilton, $75.

Miscellaneous.

Salmon Fishing in Canada.—I shall not attempt to describe the fall of the bright waters over a bed of shelving rocks, which just pent them up sufficiently at the head of the basin to give their progress through the whole of its depths a visible impetus. I shall not vainly essay to make present to the mind's eye of my reader the deep, clear, sandy bottomed cove, which was worn into the rocks on the right-hand side of the river, nor the dancing stream which leaped and kissed the overhanging alders on the left, nor the island of glittering gravel which, about a hundred yards down from the fall, divided the river into two streams, and thus enabled the angler to fish every portion of it perfectly. Cautiously, lest he should disturb a fin, my frightful friend paddled his canoe through the still water on the right side of the river, motioned to me by signs—for we could not exchange a word, Trinity College, Dublin, not having educated me in the Indian tongues—that I should disembark and proceed to fish, which I was previously burning to do. Soon was the single splice in my 18 feet of Irish ash; with one foot of hickory and two inches of tortoise shell at the top, tied together with a strong and well waxed thread of hemp. Quickly was my gold tinselled a fiery brown, with claret hackle and mixed wings, attached to my single gut casting-line; for very rarely have I used any other. Rapidly did I make my first three throws in the very jaws of the gorge, and just as rapidly, on the third throw, did an animated mass of molten silver, as it appeared, rush along the surface of the water, engulphed my fiery brown in his widespread jaws, and turn to descend into the depths beneath him, when he received, from some involuntary and indescribable turn of wrist, which is called the "strike," such a twinge in the lower part of his tongue, as made him believe that he was held fast by something amazingly hot, which it was his duty to extinguish and resist by every means that was afforded to him by water, tail, and fins. His rushes to and fro, his dives deep and long, his leaps many and rapidly repeated; the adroitness with which the Indian received me into his frail and unsteady canoe, at the very moment when the last foot of line was rolling off my reel; the steadiness and quietude with which he brought me over my fish; the celerity with which he followed him in all his manœuvres; the skill with which he enabled me, coaxingly, to draw him into the still water at the head of the pool; and the deadly certainty with which, on the first opportunity, he fixed the cruel gaff in his side; all this I spare the reader, contenting myself with stating that, at the end of about 25 minutes, the "water angel," as a Yankee writer calls the salmon, was tested as to weight, and found to be rather more than twelve pounds.—*Salmon fishing in Upper Canada; by a Resident. Edited by Colonel Sir James Edward Alexander.*

Dry Food.—Through Milon runs a canal, on the bridges over which one is reminded of a curious passage in the history of the city. One of its old dukes, being placed under excommunication by the Pope, received the bull by the hands of two delegates. He heard it, and had them driven in state until they reached the bridge. They did not know why, but found their carriage suddenly stopped on the bridge, with the water at hand, while they were surrounded by the guards of the duke, who was a tyrant and a desperado. "My lords," said the duke, "whether would you prefer to eat or drink?" They looked at the water, looked at the guards, and said, "Here is too much water to drink; we shall prefer to eat." "Very well, you shall have your choice," he said. The bull was produced, its parchment cut up in pieces, and the dignitaries of Rome were forced to eat it, and also the leaden seals by which it was authenticated. Yet this rebellious duke and the Pope were afterwards good friends.—*Italy in Transition; by Wm Arthur, A. M.*

An Iegenious Cat.—Cats in general are said to die hard; but De la Croix tells of one that escaped a wretched death by outwitting a philosophical professor: "I once saw," he relates, "a lecturer upon experimental philosophy place a cat under the glass receiver of an air pump for the purpose of demonstrating that life cannot be supported without air and respiration. The lecturer had already made several strokes with the piston in order to exhaust the receiver of air, when the cat, who began to feel herself very uncomfortable in the rarified atmosphere, was fortunate enough to discover the source from whence her uneasiness proceeded. She placed her paw upon the hole through which the air escaped, and thus prevented any more from passing out of the receiver. All the exertions of the philosopher were now unavailing. In vain he drew the piston; the cat's paw effectually prevented its operation. Hoping to effect his purpose, he again let air into the receiver, which, as soon as the cat perceived, she withdrew her paw from the aperture; but whenever he attempted to exhaust the receiver, she applied her paw as before. The spectators clapped their hands in admiration of the cat's sagacity, and the lecturer was compelled to remove her, and substitute another cat that possessed less penetration, for the cruel and inexcusable experiment."

Editorial Notices, &c.

We have received through Mr. Rowsell, of this city, the three British Reviews for October, viz: the *Quarterly*, the *Edinburgh*, and the *Westminster*, reprinted by Leonard Scott, & Co., New York.

The following are the subjects treated of:

The Quarterly :—Brazilian Empire; Deaconesses; Public School Education; Wills and Will-making, ancient and modern; Eliot's Novels; Arrest of the Five Members by Charles I.; Iron Sides and Wooden Walls; Competitive Examinations.

The Edinburgh :—Recent Geographical Researches; Memoirs of the Master of Sinclair; Muller's Ancient Sanscrit Literature; Grotius and the sources of International Law; The Churches of the Holy Land; The Grand Remonstrance; Scottish County Histories; Brain Difficulties; The United States under Mr. Buchanan.

The Westminster:—Neo-Christianity; North American Indians, Robert Owen; The Organization of Italy; The Antiquity of the Human Race; Russia—present and future; Our National Defences; Thackeray as a Novelist and Photographer; Contemporary Literature.

It is quite unnecessary to speak of the high literary merits of these Reviews, which have long enjoyed a world renowned reputation. The subscription price for each Review is only $3 a year; and the above three, with the *North British Review*, a Quarterly having already attained a high standing in the world of letters, with Blackwood's celebrated Monthly Magazine, may all be had for the unprecedentedly low price of $10; being *less than a fourth* of the amount for which they are charged in Britain! We cannot but regard it as a happy circumstance that so large an amount of the highest literature, imbued with a genuine British spirit, is thus placed within the reach of the reading classes in these Provinces. Our agricultural readers will often find elaborate articles on some particular branches of their art; and we should be glad to know that these invaluable periodicals were more largely patronized by our rural population.

The Illustrated Annual Register of Rural Affairs for 1861. Edited by J. J. Thomas, Albany, N. Y. Luther Tucker & Son.

This little Annual continues to maintain its high character for useful and interesting information, specially adapted to the agricultural and rural population. Among other matters of importance may be mentioned, *Hints for the Month*, contained in the Calendar; the article on *Working Men's Cottages*, with illustrative designs; *Roses* and *Greenhouse Structures*, with beautiful illustrations; *Poultry*, *Weeds*, &c. No farmer or gardener, who has any aspirations for improvement, ought to be without this useful and beautifully got up Annual. Price only 25 cents a copy, and in clubs only $2 for one dozen.

The American Agriculturist adapted to the Farm, Garden, and Household. Edited by Orange Judd, A. M.,—monthly. New York.

This is decidedly among the best of the numerous agricultural periodicals of the United States. It is a large and beautiful got up paper, edited with great ability and care, and ably supported by a number of experienced writers, of good standing. The *American Agriculturist* is well deserving the extensive circulation it has already attained, and our Canadian farmers would find it a very valuable acquisition. Single copies only $1 a year, which can be remitted by mail to the Editor and Proprietor, Orange Judd, 41 Park Row, New York.

Mape's Illustrated Catalogue of Agricultural and Horticultural Implements and Machines, &c. &c. New York. 1860.

This is a beautifuly printed and illustrated Catalogue, extending to about 250 pages, is highly creditable to Professor Mapes' well-known enterprising spirit in all matters relating to agriculture, and its sister art. The price is affixed to each article, and the more important articles are illustrated by well-executed engravings, with descriptive letter-press.

The Agriculturist,

Or Journal and Transactions of the Board of Agriculture of Upper Canada,

Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Fve Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed at the "Guardian" Steam Press, King St. East, Toronto.

☞ Not being now able to supply the first nine numbers of the current volume, the subscription price of the "Agriculturist" from 15th May to the end of the year, will be 30 cents per copy, with bonus at the same rate as previously, viz: one additional copy with every ten orders, and paid for in advance.

For the half year commencing 1st July the price will be 25 cents. Nine copies for $2.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, DECEMBER 1, 1860. No. 23.

Testing Agricultural Implements.

A very suggestive paper was read at a recent meeting of the Central Farmers' Club, (London, England,) by Mr. Fisher Hobbs, on "The public and private Trials of Agricultural Implements; can they be made more efficient?"—Several of the leading Implement makers, as well as farmers, were present. The opinion seemed to be generally agreed to that notwithstanding the greater pains and more systematic accuracy that of late have been shown in testing Implements, much yet remains to be accomplished, that may be regarded as practicable. Thoroughly competent judges, composed of Implement makers and practical farmers; more time and fewer implements of different classes for trial, appeared to the meeting to be the chief desiderata. Each implement or machine should be tried in its proper season; that is, Reapers and Mowers when the grain and grass are sufficiently matured; ploughs, drills, scarifiers, &c., when the soil is in a suitable state for their practical working in the ordinary routine of farm operations. Definite rules should be laid down for performing the work, and the motive power carefully measured by the most accurate instruments procurable. In several minor matters relative to the carrying out of these objects considerable diversity of opinion prevailed. In England we find, as in Canada, it is difficult to get competent people willing to incur the time and expense necessary in conducting trials in one place; especially if they recur annually. The Royal English Society divides Implements and Machines into three classes, each of which is publicly tested every three years. Several of the leading members from some misunderstanding with the Society, refused to exhibit at the last Show at Canterbury. Some of them are opposed to the practice of giving premiums, and the old West of England Society has acted on this principle for the last two or three years, without, it would appear, diminishing the number of exhibiters. We doubt, however, the application of such a principle to Canada, and in England even, generally, and for a length of time.

The *Agricultural Gazette* argues that the number of improved implements is now so large and widely diffused, that the necessity for great central trials, however efficiently conducted, is every year diminishing; and that as good, or even better comparative estimates may be formed of their capabilities and special adaptations, by observing their working in the ordinary operations of the farm; since but few parishes in the more advanced districts that do not possses a number of the different kinds of improved implements and machines. This is a subject no doubt beset with difficulties, which it will be impossible, perhaps, ever wholly to remove. But what with as carefully conducted trials as circumstances will admit, and observing the working of different implements in ordinary opera-

tion in the field, not only may much reliable information be elicited, but a good practical man will not often be at a loss in coming to a pretty satisfactory conclusion.

Wheat Culture.

We gave some time ago some notices of the experiments of the Rev. Mr. Smith, of Lois-Weedon, Northamptonshire, England, in cultivating wheat on an adaptation of the Tullian theory. The following exposition of the plan, which we take from the Irish Country Gentleman, will be found interesting:

AN ADAPTATION OF THE LOIS-WEED ON HUSBANDRY.

BY A. HARDY, SEEDGROWER.

Some time ago I advised farmers, allotters, and cottage gardeners, to grow wheat instead of the precarious potato, and, for true economy, to do so on the Lois-Weedon principle. To render my advice the more practicable, I would now show how this principle may be carried out with the ordinary appliances on other farms. But I must show briefly first, Mr. Smith's own system in operation and in its results.

At the outset of his farming, fifteen years ago, Mr. Smith had a four-acre field, which was in grass; this he pared and took off the land, then ploughed it the full depth of the 5-inch staple for a crop of oats, followed by vetches. After this came the first tripple-rowed wheat crop, with its wide intervals, which he dug one spade deep, bringing only a very few inches of yellow clay subsoil to the surface. The second year, these well-stirred intervals bore the wheat crop, and the stubble was dug in. And thus year after year, alternately, the same acre of land has had *a fallow* and *a wheat crop* too. In the third and fourth years the spade went down a few inches deeper, and so, gradually and regularly, for four years more, till a depth of sixteen or eighteen inches was reached, when he stayed his hand, and after that was satisfied for the four following years with a single spit. Last year, however, he returned to the *double* spit, and a *fresh* inch of clay. The digging, as may be seen, is now two spits deep; and after the pan was a little stirred, the staple, with the stubble, was returned upon it; the clods were shattered, and the second spit, with its sprinkling of yellow clay, was gently laid uppermost, in such a form that the frost might be let right through the whole. These high-ridged intervals will be thus, during winter, higher than the tender wheat, protecting it and checking the drifted snow.

The winter fallow over, he levels the ridges with the horse-hoe, cleans the rows well, and the intervals, keeping the surface of the latter constantly open, till the wheat is about to flower. Then will come a process peculiar to the plan, and which meets a serious difficulty in our uncertain climate. We, rotation farmers, have sometimes a heavy crop of wheat, from high farming, &c.; but the wind and the rain, as in the present and many other seasons, we are utterly helpless against, whilst Mr. Smith enjoys a general immunity from their evil effects. The broad fallow intervals enable him to take a turn with the plough, *to earth up his wheat with the mould board.* Immediately after this, the same day it may be, follows another of singular efficacy in swelling the grain. He *subsoils*, with "Sigma's Subsoiler," as deeply as he can, with two horses, in the centre of each furrow just made by the plough, and this closes the work till harvest.

The crop being carried, he makes preparation at once for sowing. He first lightly horse-hoes and cleanses the furrows; then ploughs close to the stubble, casting the earth back again into the centre. There are thus two furrows in each interval, and *these* he also subsoils, which leaves the whole of the land intended for the next crop in a perfect hollow and pulverized condition.—But though wheat loves a mellow bed, it loathes a soft one. He therefore consolidates the soil with a double clod-crusher, which takes two beds at once, the horse walking on the stubble in the centre. This being done he waits till near the middle of September for the rains, if it may be, to perfect the culture.

I would be glad to have your close attention while I now describe the sowing, because upon the accuracy of this process depends not only the goodness and fulness of the crop, but the great pleasure of, perhaps, a daily inspection of the true lines, and even vegetation of this beautiful plant for ten months in the year.

All machinery for sowing, besides the single-hand dibble, he has long discarded. He rejects even "Sigma's" admirable planter—which we hear is so efficient—believing all to be comparatively unsafe and inefficient; for, with the hand-dibble, the right hand dibbling and the left dropping the grain, *he can see the seed deposited*, and he knows that it is there in its right place, and at the right depth. He is satisfied too, with the rapidity with which the practised workman does his work. It is true, his work is marked out for him more accurately and quickly than he could do it himself. Another hand stretches a line nearly, but not quite in the centre, from one end of the interval to the other. With a light hand implement, invented by Sigma, which holds three small mould-boards, set at the required distance apart, he now, guiding the middle mould-board by the line, draws with almost mathematical truth three minute furrows, in which the dibbler deposits the seed. And when the whole piece is completed, if the surface be dry enough, he covers over the seed, and closes

up the channels with the crusher. In spring the crusher is again employed in compressing the wheat plant, after which the hand and the hand-hoe are busy between the rows, so long as it is safe, and then comes the last scene of all, the sickle and the harvest home.

Sum up, then, the annual average outlay for the wheat crops, from first to last, always keeping in mind the digging process I have described, how it begins with one shallow spit the first two years, increasing by degrees to two good spits of pulverized soil, two or three inches of solid clay being added, and for years not even that.

The very natural question here arises, How is it that, by so simple a process, *without manure*, the same acre of land is enabled year after year to yield such a produce of wheat? There are some few favored spots in England so rich that they produce, without any dressing, a constant succession of heavy wheat crops, by the ordinary way of farming. "If my land were like that," says Mr. Smith, "it would even then be surprising that forty bushels of wheat should ever be reaped from the moiety of the acre." But his clay piece is really nothing but ordinary heavy wheat land.

Just one thing more and I have done. Mr. Smith uses no manure for his wheat crop, as he finds the use of it too enriching. "Add manure," he says, "to my deep and thorough tillage, and well-fed intervals, and the crop would be too luxuriant, and blight on the spot, or come down and mildew." He fears even the smallest remnant of by-gone dressings, and depends wholly on mineral food from below, and on frost accumulations of atmospheric ammonia deposited from time to time in the soil, and its continuous, never-ending flow from the same *natural* sources.

Using, then, no manure for *wheat*, he has a double supply for his other crops. Manure well mixed and well-made, from well-fed animals, including night-soil, liquid and solid. I will only instance his winter bean crop. I give here the process of its cultivation in detail, because, like the wheat crop, it is grown on the same acre of land, year after year, and the plan, like that of the wheat, is now reduced to a system. I give it for another reason: it meets a very serious disadvantage in the ordinary growth of the bean crop—viz., the apparent impossibility of keeping it clean. The weeds are scattered broadcast at reaping, and the foul straw, carried to the yard, perpetuates in manure the ineradicable evil. But look at his crop grown in single rows, *five* feet apart! (I should prefer double rows.) The plant is now up (November,) and in the centre of the interval there is the single row of last year's stubble. He will shortly broadcast and scarify, and stir the whole interval, strike a deep furrow in the line of the stubble, subsoil it, and plough into the channel a heavy dressing of manure, and leave it for the winter. In the spring, in preparation for the next planting, he stirs and mixes the whole together, continuing the cleaning process until he is shut out by the present crop, which, in June and July, will cover the land, as it were shaking hands. *There is hardly a weed to be seen, and not one in flower throughout the year.* The produce in 1858 was 42½ bushels, though dwindled by the heat. The year before it was 44. The year before that it was 50½ bushels. And most probably this year, 1860, being in double rows, (another row being introduced in spring to repair the broken plant, the unusual cold and wet winter having ruined it,) as I estimated when I saw them growing, will exceed 60 bushels—from, I repeat it, single or double rows of beans five feet apart.

I will now introduce Mr. Smith's balance-sheet, showing the actual average outlay, yield, and profit, at the *lowest* rate of produce and value for 14 years:—

	£	s.	d.
Digging and cleaning the moiety of each acre	1	14	0
Horse-hoeing ditto three times, and plough, 4s.	0	10	0
Hoeing and weeding	0	5	0
Rolling with crusher at seed time and at spring, 1s.	0	3	0
Two pecks of seed, 2s. 6d.; dibbling, 5s.	0	7	6
Bird keeping	0	4	0
Earthing up wheat	0	3	0
Reaping, &c., to thrashing and marketing	0	13	0
Rent, £2; rates and taxes, 4s. 3d.	2	4	3
	£6	3	9
	£	s.	d.
34 bushels of wheat, at 5s.	8	10	0
1½ tons of straw, at 40s.	3	0	0
	£11	10	0
Deduct outlay	6	3	9
Net profit per acre	£5	6	3

The *principle* is *perfect* and *clean* cultivation without manure, and without producing sterility in the soil, and cropping only half the land every year; against *imperfect* husbandry, with abundance of costly stimulants, and cropping the whole of the land only every four years with corn and WEEDS. From the moiety of each acre, in the year 1858, was upwards of forty bushels of fine red wheat, with an estimate of two tons of straw. The produce of 1859 and 1860, are not yet published, and it is probable they never will, though both these crops are likely to exceed any of the former, as Mr. Smith scorns the idea of publishing anything which savors of puffing of any of his doings, even when they are well substantiated. He calls it the *moiety* of each acre, for so it actually is; for a full acre of wheat in 10-inch rows contains, we will say, 120 10-inch divisions. Take away, then, every alternate three rows, and you have the Lois-Weedon with only sixty rows, being the exact moiety of the acre of wheat. In the year 1857 the pro-

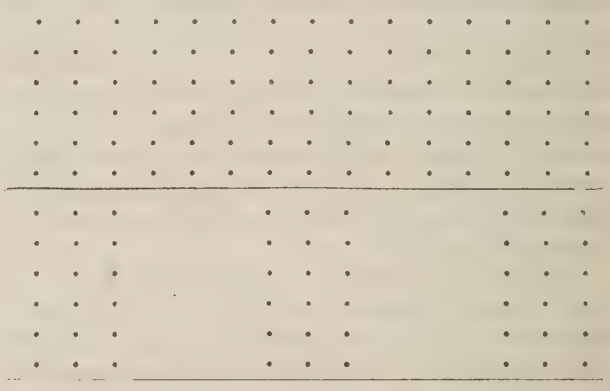
duce was thirty-six bushels; the year before, 37; and of the prior years, beginning with 1847, the average yield may be safely given at 34, as in his balance-sheet. Some years it has been over 40, and it is likely to be so this year. It is a low average of the amount of straw also produced from the same moiety of each acre, and not returned to it, to put it at one and a-half ton, and not a high one when he values the ton at 40s.; for, whether he buys or sells it, such is its value to him.

Here, then, is the very point, and the only point, that first led him to publish these results, and how they were brought about. How, with wheat at 40s., or even less, it is possible to grow it with profit, a nett profit of at least £4 the acre. It has been declared that it is impossible to tell the precise value of an acre of wheat to the grower; that it is so mixed up with the tillage and dressings of the other crops in the *rotation* as to defy any exact calculation in the matter. But here recollect, in this system, the wheat crop is taken out of the *rotation* altogether. It has nothing to do with it; it begins and ends with itself; so that, giving the outlay, the profit is clear. Suppose then, a farmer to have a 400-acre arable farm, and that he sets apart 100 acres of heavy wheat land for wheat on this plan; suppose him, moreover to do as he has done, and to *succeed*,—for Mr. Smith rejects the unpleasing flattery that he can accomplish what others cannot—he has, with low prices, from one-fourth of his land, a nett profit of £400, with the remaining 300 acres to be dealt with in the ordinary way, in whatever rotation he pleases, including wheat, as a separate farm. Suppose, in like manner, a farm of less dimensions.—say twenty acres,—which perhaps will better serve for an illustration, on which no one can live by the present plans and prices, to *farm* it in the ordinary way, though it is possible he might by this; to have five acres set apart for Lois-Weedon. I will vouch for him who carries out the plan strictly that his profits will far exceed others practiced in the old jog-trot, four-course system, always alike, and bound down by restrictive leases, as if it could never be reformed.

And now, lastly, seeing it cannot be done on a broad scale *thus* for want of capital and manual labor to perform the digging, I will briefly give my proposition how it might be carried out with the common plough, saying nothing of what will yet be accomplished by steam power and other implements. It is simply to introduce five rows of wheat instead of Mr. Smith's three, on the middle of our common seven feet four inches stetches, at twelve inches apart, instead of ten, and the rest to be followed as Mr. Smith has directed. First, as a beginning, to clean and subsoil our old furrows and adjacent parts for the first crop, which can be put in with the common drill occasionally, or better by the hand-dibble and self-dropper, by adjusting its parts, and stopping the outside spouts; following the counterpart or moiety of the land in winter and summer, &c., according to our worthy friend, the Rev. S. Smith's directions on his dug portion, with the exception, however, of always a furrow open in the centre, where no corn could grow were it there. Thus our common ploughed lands would be converted at once into Lois-Weedon, or similarly so, even at less expense, there being thus no digging to take into debtor account. In four years, when the land will be as clean as a whistle, the course could be changed if need be, and other land so cropped and cleaned, till that is also *free from weeds, &c.*

Waldon, Essex, Sept., 1860.

An ordinary crop of wheat, ten inches apart in the rows.



A Lois-Weedon crop of wheat, in triple rows, ten inches apart in the rows.

Exportation of American and Canadian Cheese and Butter.

It appears from a statement in a recent number of the *Mark Lane Express*, that the export of Butter and Cheese from this Continent to England, has astonishingly increased during the past year. The exports of *Butter* from the United States to Great Britain and Ireland, from September 1st, 1858, to September 1st, 1859, amounted to only 307 tons; while from September 1st, 1859, to September 1st, 1860, it reached the enormous quantity of 2,141 tons! And during the former year the export of *Cheese* was 2,599 tons; but during the latter, 7,542 tons, or nearly three-fold!

BUTTER EXPORTS BY SEA FROM MONTREAL.

To Oct., 1860.	To Oct., 1859.	To Oct., 1858.
22,828 firkins.	7,871 firkins.	4,534 firkins.

The exports from Montreal do not represent the aggregate Canadian exports, but only a small portion. They represent the increase of the year, however, as fully as the aggregate will do when fully ascertained.

The writer observes:—"Such an increase in the dairy produce of one year may be said to be without example. Nor is there any doubt as to the ratio of increase being maintained in future years. The Canadian farmer may turn unlimited herds of cows into the bush to feed in summer; and the Western farmer has even more scope and less trouble on the prairies. Cheese and butter can be produced in America without limit, and at a less cost to the farmer than in any other country; and now that the production is taken in hand in a spirited way, the supply will be enormously increased. Nearly 7,000 tons more dairy produce have been received this year than last; and there is every reason to believe that the quantity to be received next year will at least be doubled."

After describing the imperfect manner of packing butter into firkins during the summer months, by which it is always unequal in quality and often proves rancid, he remarks—

"It is satisfactory to observe, that this untoward state of things is being changed, and that American dairy produce is in a fair way of getting rid of the bad name that has been so long attached to it. Within the past few years a class of men possessed of ample means, and to whom the making of cheese and butter is familiar, have found their way to Canada and the United States. These men, availing themselves of the facilities that now exist for sending what they have to market, have declined the services of the drapers and grocers and others, and sent their cheese and butter to New York and Boston, and elsewhere, direct by railway. Need the result be told? Well prepared Canadian and Western butter now command the highest market price; and dairy farming has received in the course of the present season an extension which is scarcely credible. Milk has ceased to be bestowed upon the hogs, or to be wasted in the household; and milch cows are everywhere in great request. In short, dairy farming, which hitherto has been neglected on the American continent, is at length found to be highly profitable, and is being prosecuted in a way that will be felt before long in England. No better proof of this can be afforded than by a comparison of the statements of exports from the United States and Canada."

We commend these observations to the best attention of our farmers. Most of our limestone soils, are admirably adapted to dairy purposes, and with proper care and judgment there is no reason why Canada as well as the adjoining States should not every year increase her exports both of Butter and Cheese of improving quality.

Thirty thousand tourists visited Niagara Falls during the past season.

Death of the Duke of Richmond.

It is with deep regret that we record the decease of this estimable nobleman, than whom agriculture never had a warmer friend. Some fifteen years ago it was our good fortune to meet his Grace occasionally at public or private meetings for the encouragement and improvement of agriculture, and we can cheerfully testify to the geniality of his spirit, and his correct and extensive practical knowledge of this his favorite pursuit. In the Duke were combined all the essential elements of the statesman and the soldier; the generous landlord and the genuine British farmer. Many years ago we heard him publicly declare that he had resolved upon beating Jonas Webb as a Southdown breeder, but it took, we believe, some dozen years before he was able to accomplish his object; indicating a characteristic and exemplary perseverance. His Grace was in his 70th year. The following obituary notice is taken from the *Mark Lane Express*:—

"Agriculture had no truer friend than the Duke of Richmond. His heart was really in the cause, and it was as no mere stepping-stone to something else that he showed at a rural gathering or shook a farmer by the hand. *He was with them*, and his justly-earned popularity told how well they appreciated him. Through the varied fortunes that have followed agriculture, there was no so sure a man to depend upon, nor one who so readily responded to any call made upon his services—and there were many. Until within the last few years, when declining health alone compelled him gradually to withdraw from all excitement, no man was so often before the world as the advocate of agriculture. In the House of Lords, at meetings of all kinds held in association with the interest, amongst his own tenantry at Goodwood and in the North, he was equally staunch, active, and considerate. The Duke of Richmond was one of the warmest promoters of the Royal Agricultural Society, of which he had twice been President, and of which he died a Trustee. He has for many years been the President of the Smithfield Club, where his absence of late had been a source of general regret. When in gratitude to his exertions the farmers of the Kingdom offered him some testimonial of their thanks and respect, he would hear of this in no other form but in the establishment of an Institution for the benefit of their own order. He coveted no high places for himself, but would rise to speak from his seat in the midst of them, and triumph over his neighbour Rigden, or renew the challenge for the next meeting, as the fortune of the day might have

told for or against him. The princely hospitalities of Goodwood, and the taste and genuine feeling with which they were administered, have long been the theme not merely of Englishmen, but of the world. His devotion to his country as a soldier in his earlier life, and as a soldier to his latest breath, are as familiar to most of us. He may have almost been said to have died with harness on his back, for he only left the charge of his regiment when he could no longer get about. He dearly loved his profession, and Mars divided with Ceres his first hopes and aspirations. His Grace was, perhaps, only less keen as a sportsman, having been, previous to the wound he received at Orthes, a good cricketer, a capital shot, and a forward man with hounds. Then, again, he made the race meetings in his own park, the best in the kingdom; but we fancy his own sympathies at Goodwood were more with his old shepherd and the Southdowns, than with Mr. Kent and the training stable. Agriculture, in fact, was something of a passion with him, while his career will stand as a memorial of how well he served her. Never was there an honor more justly earned than when the Smithfield Club placed Lord Spencer on the one side of their Gold Medal and the Duke of Richmond on the other.

Veterinary College in Ireland.

We observe that vigorous efforts are now making to establish a Veterinary College in Ireland, where no institution of the kind has heretofore existed, as in England and Scotland. The projectors appear to find the undertaking a more difficult one than was anticipated, but are persevering in their efforts. The *Irish Country Gentleman* of Dublin says:

"The various attempts which, for the last half century, have been made to establish a Veterinary College in Ireland, have been confined solely to suggestions; and these were generally of the most conflicting character. An effort like the present one was never made. If, in details, the Committee have erred, it should be borne in mind that error is an almost invariable result of attempting anything new; and *de facto*, the work in which the Committee are engaged is in its practical bearings, we venture still to believe, quite new in this city. But we have yet to discover that they are in error, inasmuch as they are only wedded to the important and indisputable right of endeavouring to achieve that object which *others* have only declared to be a *desideratum*.

It is said that a Veterinary College cannot be founded by money alone. The truth of this is so obvious that we should not expect it to call forth any discussion; and indeed we have many precedents to prove that the legacies of benevolent persons, and the willing exertions of enlightened men, have failed to realise good, because of their want of proper guidance, and application by practical men, or by means of well-devised schemes. A remarkable illustration of this is afforded in the case of the late Mr. Brown, of Dublin, who bequeathed £20,000 for the purpose of establishing an Institution for the Treatment of the Diseases of the Domesticated Animals, "within one mile of Westminster, Lambeth, "or Dublin;" yet this princely bequest has not yet been applied. We have no doubt that if time be allowed, and a proper system of testing the qualifications of the Veterinary professors be adopted, competent graduates will not be wanting. We firmly believe that it is the earnest desire of the promoters of the Irish Veterinary College to go the right way to work. They invite the co-operation of all whose primary idea is identical with their own. This is not the time to set up claims of priority, or to introduce angry polemics. They hold forth the right hand of fellowship to all who will work to accomplish what on all sides is allowed to be a desired object; and they ask for advice as well as co-operation; and if all unite there can be no doubt as to the supply of one, at least, of Ireland's greatest wants—a National Veterinary College.

In conclusion, we are happy to be able to state that the project has been warmly approved of by Professor Gamgee, the distinguished Principal of the New Edinburgh Veterinary College, who has kindly offered to assist in any way in his power. Professor Dick, of the Edinburgh College, has also expressed his pleasure at perceiving that Ireland is at last astir on the subject of Veterinary education; a cause for which he has so long and successfully labored. We have lately visited both the colleges referred to, and have derived much pleasure as well as profit from our inspection of them. We have carefully studied the working of these institutions, and hope to apply the knowledge thus obtained in assisting in the organisation of the Veterinary College of Ireland.

Thanksgiving Day.

The people of this Province very properly observed the day set apart by authority for special thanksgiving to Almighty God for having blessed the labors of the husbandman with an abundant harvest. In a purely commercial point of view this is a matter of the greatest importance, and should call forth our thankfulness to the watchful care of a beneficent Providence. Unfortunately the severe commercial panic that spread its desolating influence, more or less, over the whole civilized world, was followed in this Province by two successive bad harvests;

involving such a diminution of the fruits of the earth, as to produce the most serious stagnation and losses among all classes of the community. The previously existing monetary infliction and reckless speculation rendered the transition more intense and ruinous in the result. If, however, the commercial panic, which was so general in its operation, had been succeeded by harvests of average productiveness, Canada would have gone through the ordeal, not without serious inconvenience, but certainly with much less disastrous consequences. And it is to be hoped that as prosperity is again dawning upon us, the painful experience of the past will prove an effectual warning for the future against being again involved in chimerical projects and rash speculations. This country, we believe, holds out sufficient inducements to honest industry and the judicious employment of capital. All healthy and enduring progress must be comparatively slow and progressive; and this is in general as true of an individual as it is unquestionably of a nation. Haste is but seldom real progress; and we have high authority for believing, confirmed by every-day experience, that those who hasten to be rich will almost surely fall into a snare.

But there is another view of the subject. How clearly does the history of this Province for the past few years indicate that agriculture, the *artificial* produce of the soil, is the almost exclusive source of our wealth and prosperity. And this must continue to be the case in nearly the same degree, for an indefinite time to come. Arts and manufactures naturally fall into the national movement as they are required or can be made productive, but their development to be healthy must be natural, that is slow and progressive. All the great analogies of nature are in accordance with this law of progress. The monarchs of the forest outlive generations of mankind before reaching full maturity, and will run a similar course in their decline; whereas the gourd springs up and perishes in a night. Agriculture then, being the imperishable basis of our wealth and prosperity, it was meet and right for a christian people to return thanks in a special and public manner to Him from whom all temporal as well as spiritual blessings flow, for the bountiful harvest with which we, in common with a neighboring nation, have been favored. There is perhaps no pursuit in life, which so forcibly reminds a man of his dependance upon God to bring his labors to a successful issue, as that of the farmer. He is endowed with faculties of mind and body which enable him to prepare the soil, select and sow the seed and do all other things in accordance with the natural laws of Providence, as far as he understands them; and then leaves the result, in the spirit of faith and hope, to Him, who "giveth the increase." Of all men, the farmer must be held the least excusable if he neglects to cultivate a devout and thankful spirit, seeing that his pursuit brings him into daily contact with the wonderful operations of creative and sustaining Power, in the orderly cousse of the seasons. We are glad to find that the old venerated festivities of "Harvest Home," in our father-land, are beginning to be accompanied by solemn thanksgiving in the parish churches, and that the becoming festivities and recreations of such occasions are in some measure balanced by a trusting faith and an elevated piety. May we in Canada so use the blessings which a gracious Providence showers down upon us, that the mere accumulation of worldly wealth may not appear to be the exclusive or even the chief object of desire; but that we may employ them in ministering to the necessities of the poor; in diffusing as widely as possible, the advantages of sound, secular knowledge among the mass of the people, and in aiding the ministrations of christianity among those who are filling up the remote and spiritually destitute portions of our country.

History of Gypsum as a Manure.

The grand value of gypsum to the farmer, and even the chief interest of it to the merchant, are its uses as a manure. Virgil, in commending the use of ashes to the Roman farmers, speaks of the value of a very impure variety of gypsum; and the early inhabitants of Britain, and the farmers of Lombardy, made use of it in some such way as the Romans. But none of these parties were acquainted with its real nature; and even the chemists, till comaparatively late period, were unable to distinguish it from limestone or other calcareous substances. About the middle of the 18thcentury, a substance which was long afterwards shown to be an impure gypsum, which had been used as a fertilizer in the neighbourhood of Hanover, drew the attention of Mayer, a talented Protestant pastor in the principality of Hohenlohe, and

was found by him to possess such manurial powers as promised to be of great and general service to agriculture. He recommended and published the substance by both example and writing; and he speedily made a deep and extensive impression in its favour. Many agriculturists subjected it to experiment; and Schubart in Germany, Tschiffeli in Switzerland, and Franklin in America, wrote in recommendation of it, pushed it into notoriety, and both won for it a host of friends and provoked against it a host of foes.

The use of gypsum extended rapidly in various parts of Europe, particularly in the district around Paris; and was so zealously propagated in North America as to occasion exportations from the quarries of Montmartre to the western side of the Atlantic; and gypsum rapidly obtained the fame, in both the old world and the new, of being one of the most powerful auxiliaries of vegetation. But the opposers of it were many and formidable; and among the most strenuous of these were the proprietors of the salt-pans, who mantained that schlot or the refuse of their pans was the only true fertilizer of its class, and could never be superseded or competed with by gypsum; and yet this very schlot turned out, in a maturer state of mineral analysis, to be itself an artificial gypsum, of precisely similar constitution and action to the natural gypsum of the quarries. The advocates of gypsum, however, were, in a sense, its worst enemies; for they so exaggerated its powers, and spoke of it as a universal manure, and recommended it for all sorts of manurial purposes, as necessarily to produce great disappointment, and in consequence to provoke disgust, anger, and opposition. Experience eventually, though slowly and hesitatingly, assigned very distinct and somewhat confined limits to its fertilizing power; pronounced it to require, in every case, the co-existence with it in the soil, either naturally or artificially, of organic manures; declared it to be efficacious chiefly on soils rich in humus and poor in salts, and generally to but a small number of ordinarily cultivated plants, such as lucern, sainfoin, clover, rye-grass, turnips, and the grasses of artificial meadows; and condemned it as almost or altogether worthless to cereal crops, to the greater number of hoed crops, and to most kinds of natural grass lands. Opinions were very long divided, too, respecting the seasons and methods of applying it; particularly as to whether it should be pulverized and applied in its natural state, or first burned and then pulverized, and as to whether it should be sprinkled on the surface as a top-dressing or thoroughly intermixed with the soil. In many and extensive districts, also, whose soil has since been supposed to contain a sufficient natural intermixture of gypsum for all the purposes of vegetation, the application of the new manure, no matter how or when made, was found to produce no beneficial effect whatever upon any kind of ground or crop.

"The opinions of practical men, with regard to the advantages and propriety of applying gypsum," says Boussingault, "although they agree in certain determinate circumstances, were still far from being unanimous. A particular inquiry into the subject was therefore held worthy of its attention by the French Government, and a comprehensive report on all the information collected was made by M. Bose to the Royal Central Agricultural Society of France. This report shows in a striking manner the advantages that may be derived from the lights of practical men; in a single line or sentence, we frequently find a summary of 20 or 30 years' experience. The following series of questions and answers I believe to embrace most of the points of any interest connected with the employment of gypsum. 1st. Does plaster act favourably on artificial meadows? Of 43 opinions given, 40 are in the affirmative, and three in the negative. 2nd. Does it act favourably on artificial meadows, the soil of which is very damp? Ten opinions given; unanimously, No. 3rd. Will it supply the place of organic manure? or will a barren soil be converted into a fertile one by the use of it? Seven opinions given; unanimously, No. 4th. Does gypsum sensibly increase the crops of the cereals? Of 32 opinions, 30 were negative, and two affirmative." Some subsequent experiments, judiciously planned and carefully executed by Mr. Smith in England, and M. de Villele in France, as well as other experiments of a less prominent character by other distinguished agriculturists, have drawn a very distinct limit round the manurial utility of gypsum, and fully ascertained the conditions in which its fertilizing power is developed.

The Methods of using Gypsum as a Manure.—Gypsum, when used as a manure, ought to be ground and applied in its natural state; for it has been proved by abundant experiments to acquire no increase of power from burning or from any other known preparational process than simple pulverization. It is usually sown or sprinkled upon the surface of meadows; but, though it acts well enough when applied in that way, it acts still better when incorporated with the soil. It is generally believed to act peculiarly well when sprinkled under such conditions as to make it lie like a film upon the wet leaves of the growing plants; but it probably derives all the advantages of that mode of deposition from the equality with which it is distributed and detained athwart the surface. Yet whenever used as a top-dressing, it ought certainly be applied in calm, moist weather, and will be all the more successful if applied at the particular time in spring when the young plants of lucern or sainfoin, or clover, have already made some degree of progress. "I have noticed, in applying gypsum to grasses," says Mr. Johnson, in his prize-essay in the Royal Agricultural Society's Journal, "that the weather at the time of spreading it has a very

material influence upon the result of the experiment. Its effects are never soon apparent when it is sown in dry weather; but if the season is damp, so that the white powdered gypsum adheres to the leaves and stalks of the young grass, the good effect is then immediate. This observation was made, many years since, by Arthur Young, by Mr. Smith, and by the American farmers; it is a well-known fact with the sainfoin growers of the Berkshire and Hampshire chalk formations, the clover cultivators of the gravels and loams of Surrey and Kent, and on the lucern grounds of the alluvial soils of Essex and Middlesex. The farmers of the United States, when dressing their turnips with gypsum, always found it answer best when spread in rainy weather."

The Crops which Gypsum Fertilizes.—The highly fertilizing power of gypsum upon sainfoin, and some of the circumstances which modify it, were well ascertained by Mr. Smith's experiments in three years of the last decade of last century. The soil on which the experiments were made was a light vegetable earth, three feet deep at the upper end of the field, and gradually lessening to three inches at the lower end, and everywhere incumbent on a subsoil of chalk; and the field was divided into equal breadths for gypsed and ungypsed growths of sainfoin, with every precaution that the circumstances should as nearly as possible be equal. In one experiment, the crop on the deeper ungypsed soil amounted to 3,357 lbs. of the dry herb, and 419 lbs. of seed; while that of the contiguous breadth, which had received about 15 bushels of gypsum in the spring of 1794, amounted to 5,462 lbs. of the dry herb, and 582 lbs. of seed. In another experiment, the crop on a shallower and ungypsed part amounted to 2,766 lbs. of the dry herb, and 245 lbs. of seed; while that upon the contiguous part, which had received about 15 bushels of gypsum in the spring of 1792, amounted to 4,381 lbs. of the dry herb, and 379 lbs. of seed. In a third experiment, the crop on the shallowest part, ungypsed, amounted to 2,068 lbs. of the dry herb, and 66 lbs. of seed; while that upon the contiguous part, which received about 15 bushels of gypsum in the spring of 1794, amounted to 4,879 lbs. of the dry herb, and 211 lbs. of seed; and that upon the same part, gypsed with 15 bushels also in the spring of 1792, amounted to 4,310 lbs. of the dry herb, and 205 lbs. of seed. Thus the crop from the ungypsed breadth being taken as 100, that upon the gypsed breadth is 231—it is more than doubled. But on comparing the weight of the herbaceous portion with that of the seed, widely different relations are apparent; for the proportion of herb to seed in the ungypsed portion of the first experiment was as 100 to 12.5—in the gypsed portion of that experiment, as 100 to 10.7; in the ungypsed portion of the second experiment, as 100 to 8.9—in the gypsed portion of that experiment, as 100 to 8.7; in the ungypsed portion of the third experiment, as 100 to 3.2—in the once gypsed portion of that experiment, as 100 to 4.3; and in the twice gypsed portion of that experiment, as 100 to 4.8. Both without and with gypsum, therefore, the proportion of the seed to the herb falls rapidly off from the deep soil to the shallow. Some principle essential to fructification was hence supposed by Mr. Smith to be very deficient in shallow soil; and this principle, in all probability, is some portion of the compound product of decomposed and decomposing organic matter.

The fertilizing power of gypsum upon white clover was ascertained by Mr Smith to be still greater than upon sainfoin. He applied the gypsum in connection with this crop in the proportion of six bushels per acre, at an advanced period in May, when the clover looked pale, and seemed to want sap; and only a fortnight afterwards, though no rain fell in the interval, the clover was vigorous, and began rapidly to form so thick a covering as to protect the ground from an intense sunshine, which scorched every adjacent ungypsed spot. In one experiment, the ungypsed crop amounted to 839 lbs. of the herb, and 56 lbs. of seed, while the gypsed crop amounted to 2,226 lbs. of the herb, and 316 lbs. of seed; and in another, the ungypsed crop amounted to 500 lbs. of the herb, and 61 lbs. of seed; while the gypsed crop amounted to 2,270 lbs. of the herb, and 174 lbs. of the seed. The mean of these experiments shows the increase from gypsing to have been as 225 to 100. M. Villele's experiments do not show so largly; yet, in consequence of having been made on moist, stony, clayey soil, of about 16 inches in depth, and incumbent on a stiff clay sub-soil, they are quite as decisive and considerably more interesting. In one of his experiments, gypsum was applied in the proportion of 4 cwt. per acre, and the ungypsed dry crop amounted to 20 cwt. 1 qr. 23 lbs., while the gypsed dry crop amounted to 40 cwt. 3 qrs. 19 lbs.; and in another, gypsum was applied in the proportion of $5\frac{3}{4}$ cwt. per acre, and the ungypsed dry crop amounted to 19 cwt. 2 qrs. 16 lbs., while the gypsed dry crop amounted to 32 cwt. 2 qrs. 27 lbs. So far as past experience discloses, gypsum may, perhaps, be pronounced less variably and more certainly beneficial to clover than to any other agricultural plant; and it has often the curious property of materially benefitting clover in such a manner as to render the effect observable only when the crop is converted into hay. "I have tried gypsum on a great variety of soils," says Dr. Shier, "in general with but little success. In a few instances, however, it proved highly beneficial to clover. In these cases I observed that the advantage could not be detected by the eye, or even by the balance, when the produce was weighed green; but it was very apparent on weighing the dried hay."

The fertilizing power of gypsum upon legu-

minous plants, as a class of vegetables, refers generally to their herbage, and has seldom any connection with their seeds. Any inference which might be drawn from the suitableness of gypsum for sainfoin and clover to the suitableness of it for peas and beans would be a total and ruinous mistake. Any leguminous plants whose seeds are used for food, and which are grown upon soil either naturally or artificially capable of yielding to them even a very small proportion of sulphate of lime, usually assimilate so much of this salt into their seeds that these cannot easily be softened by boiling. The stubborn hardness of some peas and beans is frequently ascribed by cultivators to the temperature of the seasons of growth, or the rains which fall at the time of harvest, but is really caused by the assimilation of gypsum, and may be readily corrected by throwing a little subcarbonate of soda into the water in which they are boiled. But when leguminous plants are grown entirely for the sake of their herbage, and especially when they are intended to form a perennial cropping of green fodder for cattle, the enriching of the soil with gypsum gives them great energy of vegetation, and cause them to push forth very succulent leaves, and to renew for a long time the stems which are cut for fodder.

Some statements say that gypsum is usually very beneficial to turnips; and others assert that it is more uniformly successful for potatoes than for any other field crop. We have no means of decidedly affirming or denying these statements, or of recording the particular conditions under which they may be correct. But an unsuccessful experiment upon the gypsing of mangel wurzel by Boussingault may probably be regarded as indicative of the general inutility of gypsum to root crops. "The plants," says he, "were transplanted and watered, and the gypsum was applied at the time of earthing up. A good deal of rain fell; and shortly after having been laid on, the gypsum become incorporated with the ground. The crop was gathered on the 8th of October, three months after the gypsing, and from two equal surfaces, each of 242 square yards in extent, weighed as follows:—from the gypsed ground, 13 cwt. 2 qrs. 6 lbs.; from the ungypsed, 12 cwt. 2 qrs. 3 lbs. The gypsum would, therefore, appear to have had no beneficial effect; for the difference in favour of the gypsed piece is so trifling that it cannot be reasonably ascribed to the mineral manure; in fact, the quantity obtained from the gypsed surface does not exceed that which we constantly take from fields in the ordinary course of cultivation, and which have received no gypsum."

The fertilizing power of gypsum upon the cereal crops, as we formerly saw, was denied in 30 out of 32 answers to the Royal Agricultural Society of France, and affirmed in only 2. This ought to be decisive; yet it is hindered from making a due impression by a statement that, in the experiments of Smith, gypsed land as compared to ungypsed land produced grain in the proportion of 192 to 100. A doubt is thus started, which requires to be laid at rest; and it may be dealt with by an appeal to the recent experiments of Boussingault. He tried gypsum on wheat after ploughed-in clover, after mangel wurzel, and after potatoes, all in 1842; and the results in the entire produce were—after the ploughed-in clover, 319 lbs. on the gypsed piece, 323 on one ungypsed piece, and 327 lbs. on another ungypsed piece; after the mangel wurzel, 195 lbs. on the gypsed piece, 176 lbs. on one ungypsed piece, and 158 lbs. on another ungypsed piece; and after the potatoes, 235 lbs. on the gypsed piece, 245 lbs. on one ungypsed piece, and 264 lbs. on another ungypsed piece, thus giving on average, on the three experiments, of 250 lbs. on the gypsed piece, 248 lbs. on one ungypsed piece, and 250 on another ungypsed piece. But as the long drought of 1842 was unfavourable to wheat, other experiments were made in the eminently favourable year 1843, on equal areas of 385 square yards each, with a dose of 70 lbs. of gypsum on each of the gypsed areas, and the results were as follows:—Rye with gypsum, 516 lbs. in sheaves, and 137 lbs. of grain; rye without gypsum, 472 lbs. in sheaves, and 127 lbs. of grain. Oats with gypsum, 329 lbs. in sheaves, and 112 lbs. of grain; oats without gypsum, 368 lbs. in sheaves, and 113 lbs. of grain. Wheat with gypsum, 462 lbs. in sheaves, and 147 lbs. of grain; wheat without gypsum in one place, 453 lbs. in sheaves, and 143 lbs. of grain; wheat without gypsum in another place, 510 lbs. in sheaves, and 156 lbs of grain.

The fertilizing power of gypsum upon the artificial grasses, except in cases where the soil naturally contains a sufficient portion of sulphate of lime, is well ascertained, and of great practical value. This is particularly true with respect to the usual rotational mixture of clover and ray-grass. "If the farmer finds," says Mr. Johnson, in his prize essay, "that his fields will only grow clover successfully once in eight or twelve years, and that his neighbors tell him his land is 'tired' of clover, or 'clover-sick'—if he notices that even the application of farm-yard compost hardly adds to the luxuriance of his grasses—he may then safely conclude that his crops have gradually exhausted his land of sulphate of lime, and he may, with every confidence of success, apply a dressing of gypsum, at the rate of 2 cwt. per acre, taking care to choose a wet morning for the application; and this may be done at any season of the year, but it is better in April or the first days of May." He then declares that he can attest these facts from experience and observation; and narrates two remarkable verifications of them in the case respectively of an old paddock and of clover and sainfoin lands. The paddock was old, and had gradually become less and less productive; and after being vainly plied with

many kinds of mineral and compost manures, a portion of it suddenly became luxuriant under a dose of 40 bushels per acre of peat ashes, containing 12 per cent. of sulphate of lime, and otherwise consisting of sand, chalk, red oxide of iron, and a small quantity of common salt; and when suspicion arose that this revived portion owed its revival solely to the sulphate of lime, another portion was dosed with finely pulverized gypsum, at the rate of 2 cwt. per acre, and experienced fully as great a revival, not only sending up its former grasses with renovated vigour, but producing white clover and other grasses, whose seeds had long been sleeping in the soil. The soil of the paddock contained 6½ pes cent. of organic and soluble matters, and 19 per cent. of carbonates of lime and magnesia, and was about ten inches deep, and rested on a thin stratum of gravel, immediately incumbent on chalk. The experimenter in the case of the clover and sainfoin lands, Mr. Barnard, of Little Bordean, in Hampshire, says, "I have sown gypsum six or seven years, and never on clover or sainfoin without satisfactory proof of its efficacy, having usually grown half a ton or more of hay per acre by its use;" and he adds that, on the 1st of May, 1838, he gypsed a piece of a field of two-year-old sainfoin at the rate of 2¼ cwt. per acre; that, at harvest time, he reaped from it a produce of hay quite one ton per acre extra; that in October he reaped from the gypsed portion another produce of 1¼ ton per acre, while there was scarcely any on the ungypsed portion; and that, in the following year, without making any new application of gypsum, he got two mowings from the gypsed portion, and could find nothing to cut on the ungypsed portion.

An incidental verification of the fertilizing power of gypsum upon the artificial herbage plants, similar to that afforded by the instance of the peat ashes, occurs in the common and successful use of coal ashes as a top-dressing for clover, lucern, and sainfoin. Such coal ashes as are found on the analysis to contain a considerable proportion, say about one-tenth of their whole weight, of sulphate of lime, are generally found by farmers to be the most efficacious top-dressing for these plants which they can apply; and as they otherwise comprise but a very small proportion of fertilizing substances they may be inferred to owe all or very nearly all their efficacy to their gypsum. A fact of considerable interest in reference to gypsed grass lands, too, is that horses and cattle always prefer the grass of a gypsed portion of a field to that of an ungypsed portion. But let not any farmer be induced by these considerations to throw away money and labour in the gypsing of any ordinary natural pastures. "It is certain," says Boussingault, "that gypsum has no effect upon natural meadows. Positive experience has satisfied me of the absolute inutility of the substance here; so that upon my natural meadows at Bechelbronn I now never employ a particle of it.—*Rural Cyclopedia.*

FOR AN AGRICULTURAL ANNIVERSARY.

By Mrs. Sarah S. Socwell.

Praise ye the Lord! Let joyful songs
Rise gladly from this band;
Praise him for all the blessings given
By His unsparing hand.
'Tis he that gives the gentle rain,
The sunlight bright and clear;
His mercies are for ever new,
His goodness crowns the year.

Another year, since here we met,
On time's swift wings hath fled,
And still, upon our happy homes
Rich blessings have been shed.
Spring brought the fresh and verdant grass,
The swelling buds and flowers,
The tender shoot of springing grain,
The soft, refreshing showers.

Then came fair summer, bright and gay,
With plenty in her train,
Clothing the farmer's fertile fields
In robes of waving grain;
A crown of blossoms o'er the earth
Her fairy fingers shed,
A rich and ever-varied feast
Of luscious fruits she spread.

Now Autumn comes, with g rgeous robe
Of brilliant, changeful dye,
Seeming as if it caught its hue
From the bright sunset sky.
With rustling sheaves of golden corn
His car is thickly bound,
With purple clusters of the vine
His brow is richly crowned.

And thus thro' all the changing year
The ever-circling train
Bring joy, and peace, and plenteousness,
With each successive reign.
Then praise the Lord! Let joyful songs
Ring on the Autumn air;
Praise him for plenty which hath crowned
Our plains and valleys fair.

A Paradise for Farmers.

The correspondent of the *Times*, who reports the progress of the Prince of Wales in his North American tour, writes as follows respecting the advantages offered to British emigrants by the rich and fertile soil of Upper Canada:—"The country between Hamilton and Detroit, like all the land of Upper Canada, is rich and well cultivated, even where the black gnarled stumps of burnt pines stick up like tombstones of the forest, looming dark and mournfully upon the upstart growth of Indian corn beneath. Sometimes it is meadow land, with the ragged zigzag fences of lopped trees strewn loosely between the fields—sometimes a long track of corn is

passed, with the massive sheaves stacked together like straw tents, and the ground covered with bright orange pumpkins and squashes, which the inexhaustible fertility of the land has nurtured between the ridges of the maize. Then come acres and acres of orchards, with trees heavy and over-borne with their rich burden, drooping like willows to the ground, and their red and yellow fruit sparkling softly in the evening sun. All the barn-doors of the clean, white farm-houses stand wide open, showing heaps of corn piled within; and across the clearings oxen come slowly along with mounds of other sheaves in rough wooden carts, dragging a plenty for which the farmer has no room in the timber outbuildings which ordinarily accommodate the harvest. On every side are such signs of boundless abundance; there is such a calm in these wild, clean, fruitful homesteads, there are such signs of progress and of energy, even in the forests hacked aside to make room for cultivation, that one can but gaze with lingering astonishment upon the scene of rising prosperity, and think of that vast class at home whom Bumble denominates as 'able-bodied paupers,' going supperless to bed for want of work. Why, here are millions of acres of such fertile land as English farmers never think of getting without draining, manures and top dressings, and all the scientific agricultural slang which mark the presence of poor land. Here are millions of acres still clad in all the savage grandeur of the wilderness, and seeming to call—in their rich-matted growth of timber and luxuriant underwood—for some one to clear an overburdened soil, and let the natural fertility of the earth have scope to show its proper might and usefulness. Where the lumberers fell timber in the Upper Ottawa they scatter handfuls of Indian corn among the ragged stumps, and lo! in some six weeks' time, a harvest for a few in number, though enough in quantity to keep an English parish. Yet men break stones in England for 8d a day, and cost the country 10d more while doing it, and farmers in Upper Canada cry out for labour and get it for a few short months, till their servants have saved enough to better themselves and buy land, when at once the law of Canada steps in with restrictions which drive them in hundreds and thousands yearly to the far west of America. It is not to be supposed that the active folly which drove the States into manly insurrection and independence will ever be repeated by the home Government; but one sees each hour such slimy traces of red-tape Barnacles over Canada, such signs of its being left to the miseries of short-sighted legislation, such checks upon its growth, as no young colony, however vigorous, withstands for long. There is a mighty future for Upper Canada, if emigration to its fertile soil is only encouraged and developed by the Government at home; if they will only hold out such real inducements as American agents hold out falsely, and who manage to persuade people, even when half settled in British dominions, to make another and a final move for prairie land. Land for land, the prairie is better than even the picturesque valleys of Upper Canada; but there is not at all that difference between the two which would lead a farmer to prefer 100 acres out West to 150. or even 120, round Hamilton or London. Enable emigrants to buy three acres in Canada for what they would only get two in Michigan, Illinois, or Wisconsin; let a man buy 10 acres or 1000 if he pleases, or as means permit, and there would be no want of settlers in Canada. The value of uncleared land in Upper Canada, varies from two dollars to four dollars an acre; yet sometimes, during the prevalence of speculative epidemic, £600 sterling per acre has been offered and refused, and as much as £120 per foot of frontage tendered in vain for by-streets in small towns."

Fattening Pigs.

There are many individuals who, if asked which is the most important of our domestic animals, would unhesitatingly answer—the pig; and probably, in some respects, the opinion would not be so far astray, for the pig is essentially the animal of all classes, being found alike under the shelter of the humblest cabin and in the spacious farmeries of the wealthy. Royalty itself delights in contributing to add to the number of exhibitors at our great shows of this particular class of animals; whilst the peasant—and especially the peasant of the Emerald Isle—designates it familiarly as "the pig, the craytur," or places it in the more dignified position of "the gintleman that pays the rint."

With such a claim upon our notice, therefore, we need not feel surprised to find that the improvement in this class of animals has occupied a considerable share of attention, and that the various efforts which have been made with this view have been crowned with success. The gaunt, ill-favored, slow-feeding animals which were familiar to us in our earlier days have now entirely disappeared, unless in some very remote districts, or in some locality into which general improvement has scarcely penetrated. We have even observed that in some places where improvement in other respects is as yet almost unknown, still the breed of pigs existing in those places present characteristics which at once show that, however backward the particular locality may be in so far as regards other matters, yet that the pigs of the district have been derived from other places which are more advanced, and thus it may, in such cases, be regarded as the pioneer of improvement.

The sow should not be put to breed until she is at least twelve months old. During the period of gestation—which extends over sixteen weeks—she should not be allowed to get too fat, but on farrowing plenty of nourishing food must be given. Oatmeal gruel, mixed with a little bran, given in a moderately warm state, will first be given, gradually increasing the strength of the food by adding barley-meal, boiled barley,

pea-meal, boiled or steamed potatoes, &c.; but the food must at all times be milk-warm when given to her. Milk may also be added to the mess, and the young pigs will also soon begin to learn to use the food, which, with the milk afforded by their dam, will carry them on rapidly —a material point, if it is intended to dispose of them quickly.

Very little litter must be allowed to the sow during the time of parturition, as well as for some time afterwards, as the young pigs are apt to be smothered when a large quantity of straw is put into the sty. The sow must also be carefully watched during parturition, as many sows have a habit of devouring their young, especially those which are farrowed dead, or which die soon after.

Unless under certain circumstances, the sow should not farrow during winter, as the young pigs will not thrive during cold weather. The only exception is, when the pigs are to be sold to the butcher at Christmas as sucking pigs, and in such cases the sow and her young must be kept in a warm place. Sucking pigs are justly considered a great delicacy, and in many parts of the country, but especially in London and other large towns in England, high prices are realized for them when properly fattened for the table, and when the pigs are not more than a month, or at most six weeks old. When the litter is to be sold for this purpose, the pigs, besides being frequently supplied with the food already mentioned, must be confined as much as possible, so as to keep them from running about; and it is recommended that they be occasionally washed, with the view of promoting the fattening process.

The next stage in which pigs are much relished by consumers, is that of porkers; that is when well fed, and when from 48 to 56 lbs in weight. Previous to attaining this state they are weaned when from six weeks to eight weeks old. Some wean them at once, but it is the better plan to do gradually, particularly if they are intended to be sold as porkers. When not sold to the butcher as sucking pigs, the young males of the litter must be gelded when a fortnight old, and if it is not intended to keep the females for breeding purposes, but to be fattened, it will be as well to have them spayed at the same time. Porkers should be kept as closely confined as is consistent with their health, their food varied frequently, and given often, but not in such large quantities as to cause any to be left over. Skim or buttermilk, mixed with barley-meal, oat-meal, or pea-meal, makes exquisite pork; Indian corn and bean-meal will also be found very excellent food for this purpose The meal must be made into a moderately thin stirabout or porridge, slightly seasoned with salt, and then mixed with the milk previous to being given to the pigs. Raw or unprepared food should never at any time be given to pigs which are being fattened, as it is in a great measure thrown away.

With store pigs the case is different, and they may not only get raw vegetable food, but must also have the run of a large yard or paddock, in order to afford them that exercise which is necessary for growing animals. Vetches, cabbages, and, in fact, any succulent food is much relished by, and is well adapted for store pigs; at the same time, it is well to give them one meal a day of bean-meal, made into stirabout, or mixed with water and allowed to stand over night before being used, in order to correct any tendency to looseness which may be brought on by the free use of green food. Boiled potatoes, boiled or steamed Swedes or mangels, mixed with a little pea or bean-meal, is excellent food for store pigs, and brewers' grains may also be used with advantage, when such are obtainable. Store pigs may also have the run of a grass field or the corn stubbles, but before they are admitted into such, a ring must be inserted into their nose, in order to prevent them from turning up the soil. When confined merely to stubbles which are soon to be ploughed up, this operation is, of course, the less necessary, but as in general, store pigs have also access to other places, they ought to be ringed.

Fattening pigs consist of stores put up when about twenty months old, or brood sows of different ages. The fattening pigs must be kept closely shut up, for perfect tranquility is indispensable. Combined with this must be regularity in feeding, the feeding times being thrice a day, viz., morning, noon and night. The appetite must be stimulated by varying the food, and as much must be given at a time as the pig will consume without being surfeited. Pigs which are purchased from jobbers, and have probably been very moderately fed for some time previously, if put up to fatten and allowed at first as much food as they will eat, will gorge themselves, and sicken; but if gradually accustomed to nutritious food, they will go on improving from the first. Cooked potatoes, combined with a mixture of different kinds of grain ground into meal—viz, one-third barley meal, one-third pea-meal or bran, and one-third Indian meal—will be found the best description of food to give to fattening pigs. As the animal approaches maturity, let the potatoes and pea-meal be gradually lessened, and the quantity given of ground barley and Indian meal be proportionately increased, by which means the meat will be of the best quality.* Linseed meal, or cake is never given to fattening pigs as this description of food imparts a rank flavor to the meat; at the same time it may be given to young pigs which are intended to be kept as stores before being put up to fatten. Chandlers' greaves and grease are frequently given to pigs, but although they will fatten quickly on such food, it will only be given sparingly by those who wish to have a fine quality of meat for their own use. A considerable amount of greasy matter will, of course, always form a proportion of the kitchen waste set aside for the use of their pigs, but in such cases it is well mixed with other food.

In general, although it is not always the case, food is usually given to pigs in a slightly sour

* "The fine flavor of the Westmoreland and Cumberland hams is principally due to the fact of their being fed on oatmeal and buttermilk, and not to the mode of curing —*Rowlandson's Prize Essay on Pigs, Journal of the Royal Agricultural Society of England, Vol.* 11.

state, and it has been found that pigs are more easily fattened on such food than when it is given in a fresh and sweet state. In some parts of England a food tank forms a regular part of each set of farm-yard buildings; and where only one or two pigs are kept by the cottager, a large cask is used for the same purpose. The tank or cask is filled with boiled turnips, sharps, brewers' grains, kitchen waste, and, in fact everything which can be converted into food, and the stuff so collected is allowed to remain until perfectly sour, and often until it is actually putrid, before it is given to the animals, when some fresh barley-meal, bran, or bean-meal is mixed with each pailful as it is taken from the cistern.

The following extracts from *Caird's English Agriculture* contain the outlines of different systems of management in connection with pig-feeding:—

"On Mr. Huxtable's farm, Dorsetshire, we are informed that the pigs are kept as a manure factory, from which a given expenditure in meal will be returned, with the cost of attendance, in the increased value of the animals, and all the manure they leave to clear gain. * * * * * The pig food is, therefore, all purchased exclusively on their account, partly in the market, and partly from the inferior corn of the farm. Cheap Egyptian beans, lentils, and barley are ground into meal, the proportion of beans being increased in cold weather, and barley in warm weather, as being then respectively most suitable to the constitution of the animal. The requisite quantity is steeped over night in cold water to render it more palatable and soluble, but undergoes no other preparation."

"In Hampshire, pig-feeding we found in favor with some farmers, as being at present the best paying stock. One farmer we visited has from 40 to 50 breeding sows, which he keeps in very cheaply fitted up yards and sheds, feeding them on swedes alone till they are nearly about to litter. They are then placed in separate pigsties, and supplied with more generous food The progeny are kept till worth about 20s. each, when they are sold. A young sow pig can be bought for the same price as a ewe; the ewe produces only one lamb in the year, while the sow brings on an average two litters of seven or eight in each, or fourteen to sixteen pigs annually. Hence our informant considers the sow by much the more profitable investment for his money.

"In Berkshire, Sir John Conroy endeavors to fatten every year as many hogs as he has acres, and has, therefore, always on the farm between 300 and 400, eighty of which are in the fattening pens to be finished. The only food they receive is barley-meal and water, a 'kitchen' being conveniently placed for each pig-yard, with a trough sunk in the ground, into which the requisite quantity of meal is put among water in the evening for the morning's feed, and the trough again filled in the morning for the evening's meal Each pig is calculated to consume about ten bushels of barley in the course of feeding. The eighty fattening pigs are kept in three yards, with a shed, all well littered with straw.

"In Essex the feeding of pigs is carried on to a great extent by Mr. Huntley. He breeds none, but buys pigs at about 18s, and feeds them five weeks, when they are ready for the London market. They are fed on meal of different kinds, and sometimes on boiled Indian corn. The money realized, including prime cost, from the pig stock for one year, has reached more than £2,000, and seldom falls below £1,200 or £1,500.

"At Brancroft, on Earl Talbot's estate, in Staffordshire, a large stock of pigs is kept on the farm. They are cheaply fed on roots in winter, and on clover in summer, receiving little or no meal until they are finally put up to fatten. They are driven out every morning, and folded on the clover like sheep, returning in the afternoon to the farm-yard, where they remain during the night, well littered with straw. They eat the clover very bare; and in the following wheat crop the benefits of the pig-fold are readily recognized by its superior luxuriance.

The accommodation for pigs in the farm-yard is a matter of considerable importance. In many cases we find the piggeries stuck in any out-of-the-way corner, and much unnecessary trouble is, therefore, often imposed upon the attendants. Instead of this, the piggeries should be arranged on a distinct plan, and always convenient to the steaming-house, so that the food may be conveyed to them expeditiously, and with little trouble or loss of time. Generally, the sty consists of a roofed apartment and a small enclosed yard, open above, each division being from four to six feet square, according as the sties are intended for the accommodation of fattening pigs or breeding sows; and a range of similar apartments, with their respective yards, constitute the piggery. We prefer the plan of having the pens placed in a separate house, having a walk up the centre, with the pens on each side of the walk. The animals can be more easily inspected at all times when kept in this manner, are cooler in summer, and warmer in winter than in the old-fashioned sties, and the pens can be kept cleaner and with less trouble. Proper ventilation must be provided by means of ventilators in the roof. The floor will be composed of bricks or tiles, having a slight inclination from the wall to the centre walk, where a line of covered drain with gratings will convey the liquid to the tank. The divisions between the compartments will be made of stout planks set in grooved posts, and the height of the divisions may be about four feet. The feeding troughs, whether in the ordinary sties or in the case just mentioned, must be placed along the front of the yard or pen, and firmly secured, access from the outside being given by means of a flap-board, suspended above the trough, and the trough itself should be divided into at least two divisions, so as to keep the animals quiet whilst feeding.

Sparred floors have been introduced into piggeries as well as into cattle and sheep sheds, and many who have adopted these sparred floors speak highly of the advantages which they experience in the use of such. The planks used are 1½ inch thick, 3 inches wide, and the space

betwean each plank varies from 1 to 1¼ inch, according to the size of pigs which are to be kept in the respective pens. The manure drops into a receiver unde neath, and is removed at pleasure, no straw being used as litter.

With regard to sparred floors, Mr. Mechi says —"I have had 300 to 400 pigs at one time for several years and never had disease, but if you litter them on straw, and have many, they will get heaves, or lung disease. Mine have been on open sparred floors, so that air always circulated under and around them, and the atmosphere did not become putrescent, which is almost sure to take place on straw. Ten years of experience with the sparred floors have more and more convinced me of their superiority for stock."

By the use of the sparred floors, perfect cleanliness is insured, and where the ordinary houses exist care must be taken to keep the sties clean. It is a gross mistake to suppose that the pig is naturally a dirty animal; if left to himself, he is quite the reverse, although, like his congeners, of the order Pachy-*dermata*—the elephant, hippotamus, &c.,—he delights during hot weather in lying in a wet hole; but he also delights in a clean stye, and in cleanly-kept troughs. During hot weather some cold water should be occasionally thrown over the stye-fed pigs, as this cools them, and renders them more comfortable. The inside of the houses must be regularly whitewashed with lime three or four times a year; and, in short, it never must be forgotten that cleanliness and general careful attention are as necessary in the proper management of pigs as that of any other class of our domestic animals.—*Pringle's Meat Manufacture.*

Correspondence.

Cheviot Sheep.

Editor Canadian Agriculturist,—In your list of prizes of the late Hamilton Show, I perceive the judges of Cheviot Sheep appended some remarks to their report, which are rather derogatory to that breed, and which I cannot but think are premature and uncalled for. Have the gentlemen who made these remarks had any experience with Cheviots? or have they made any experiments betwixt them and any other breeds in Canada? If so, I for one would be glad to know what the results were. For my part, although one of the exhibitors in this class, I have not had much experience with them; but believing, from what I had heard and read, that they are a hardy and useful breed, and better adapted than some others to stand our long and rigorous winters, I purchased a few of them about a year ago. As far as my experience goes, I can truly say, they have exceeded my expectations, and I think deserve to be patronized.

If any one expects to see Cheviots rivalling in size and perfection with the Leicesters and Cotswolds, I should not be surprised if they were disappointed. They are entirely a different class of sheep: just as much so (with the exception of black faces) as the various Down sheep are different from those breeds; or, to illustrate by another comparison, as distinct as Durhams are from Devons. Whilst no one will attempt to deny the distinctive characteristics and relative qualifications of each, they are no doubt naturally adapted to their different localities, and have evidently their own peculiar spheres of usefulness. Just so it is with sheep; the massive forms and expansive chests of the one are suitable for grazing on nature's rich plains, or to luxuriate in cultivated fields well stocked with the various artificial grasses; whilst the agile bodies and active limbs of the other are better adapted to obtain their supplies from the scanty herbage and natural grasses which too many of the farms in Canada afford.

But, Sir, it seems the more singular that the committee should have made such remarks when these very sheep are first beginning to attract public attention in this country, and at the same time, were not only favorably noticed by your own reporter, but have also received strong recommendations by different writers for agricultural journals in the United States.

By your permission, I will make a few brief comments on their remarks, taking them in order. They say, "Notwithstanding the patronage of the Association, we find but few entries in this class." Not so very *few* either (41), when one of the greatest breeders of Cheviots was absent from the field altogether, and this too for a new breed but partially known, and but lately introduced; I find several classes of animals of longer standing with still fewer entries and less competition. "Generally surpassed in both size of carcass and quality of wool by the various grades exhibited among them." For *size of carcass* I admit they were surpassed; and this is one of the qualities for which it is said the Cheviots are peculiarly adapted, viz: to cross with almost any other breed and produce thereby a valuable sheep both for wool and mutton; but the query is, where are we to get our grades from, unless we have the pure breeds to cross with? But for *quality of wool*, if fineness is the test of quality, I contend *they were not surpassed.* True, the grades having apparently been produced from some heavy long-wooled sheep, had *more* wool than the true Cheviot, but the *quality of their fleece*, in my opinion was not near as good. Here I would remark that the Cheviots have a much finer texture of wool, and a shorter, closer fleece than any of the other long-wooled breeds, so called. This is one reason, no doubt, why they can so well stand the storms of their own native hills, and also why their advocates suppose they will the better be able to brave the cold winds and falling snows of a Canadian winter. Their wool is also better adapted for

home manufacture, which was one principal reason with me in getting them.

Before I conclude I would like to quote from some standard Agricultural works in Britain, the remarks of some eminent and experienced sheep traders and graziers, after the reading of which I think the Association will *not* "doubt the propriety of giving so many prizes to a class of sheep" apparently so eminently "adapted to the wants of this country." The *Complete Farmer*, in describing the Cheviots, says: "This breed of sheep is known by the want of horns; by the face and legs being mostly white, and the eyes lively and prominent; the body long; little depth in the breast; narrow there and on the chime; clean, fine small-boned legs and thin pelts. Mr. Culley considers this as a valuable breed of mountain sheep, where the herbage is chiefly of the natural grass kind, which is the case in the situations where these are found the most prevalent, and from which they have obtained their name. It is a breed which has undergone much improvement within these few years in respect to its form, and other qualities, and has been lately introduced into the most northern districts; and from its hardiness, its affording a portion of fine wool, and being quick in fattening, it is likely to answer well in such situations."

It is observed by the writer of the Argyleshire Report, that "the Cheviot sheep are in every respect superior to the black-faced kind. They are hardy, fine-wooled, and well-shaped. They are long-bodied and long-limbed, which fits them for climbing steep mountains, and for travelling, either for seeking their food or going to a distant market. Their fleece too is *finer, closer, and warmer*. They have every property that should be sought in a mountain sheep, and accordingly they have been found to thrive in every part of the Highlands in which they have been tried, and are said to be less subject to diseases than other breeds. Indeed no part of the country is more inclement than that from which they came, where the hills are sometimes covered with snow for three or four months in a year, and where many of the lower walks consist of peat bogs and deep morasses, so that with us their situation would be mended; a circumstance which will always ensure success."

It is stated in the twelfth volume of the Statistical Account of Scotland, that "the following experiment, made in the parish of Barr, in Ayrshire, shows the comparative hardiness and value of the Cheviot breed. In June a ram, and two score of ewe hogs of the Cheviot breed, were put upon one of the highest and coldest farms in the parish. The harvest was wet, the winter and spring stormy, and the loss of the native sheep through poverty and disease, was considerable. Yet all these, though strangers and in such a situation, did well."

And in "Observations on different breeds of sheep," it is stated that "in Ettrick, Ewesdale, and Liddesdale, they are now converting their flocks as quickly as possible into the Cheviot breed."

The Roxburgh Report also says, that "Liddesdale is the worst district, yet the Cheviot breed thrive in it."

The writer of the first of these Reports remarks that "it is difficult for those who have already got another kind to change their breed; but new beginners ought undoubtedly to stock with the Cheviot kind. It is said that the Yorkshire graziers have a prejudice against this kind, probably because they would then have more rivals in the trade, which is now in few hands; as the carcass and not the wool is the principal object of attention. Whatever may be in this, the introduction of the Cheviot, which would treble the price of wool, would more than balance it." And he adds from the same volume of the Statistical Account of Scotland, that "even they who have another stock, and cannot conveniently change it, might at least cross it with the Cheviot breed, which might be done with little trouble, and to great advantage."

More might be added, but I fear I have already rendered this article too lengthy for your columns.

THOMAS GUY.

Sydenham Farm, Port Oshawa,
November 27, 1860.

Principles of Breeding.

All breeding is founded on the principle that like begets like. This is, however, liable to some exceptions, and is much more generally true when breeding down than when breeding up. If two animals (which can never be exactly similar in all respects) are requisite to the perpetuation of the species, it necessarily results that the progeny must differ in a more or less degree from each parent. With wild animals, and such of the domestic as are allowed to propagate without the interference of art, and whose habits, treatment, and food are nearly similar to their natural condition, the change through successive generations is scarcely perceptible. It is only when we attempt to improve the good qualities that it is essential carefully to determine, and rigidly to apply, what are adopted as the present scientific principles of breeding. We cannot believe that we have penetrated beyond the mere threshold of this art. Unless then we launch into experiments, which are necessarily attended with uncertainty, our duty will be, to take for our guide the most successful practice of modern times, until further discoveries enable us to modify or add to such as are already known and adopted. We may assume, then, as the present rules for this art,—

1st. That the animals selected for breeding from should unite in themselves all the good qualities we wish to perpetuate in the offspring.

2nd. These qualities, technically called points,

should be inbred in the animals as far as practicable, by a long line of descent from parents similarly constituted. The necessity for this rule is evident from the fact, that in mixing different species, and especially mongrels, with a long-established breed, the latter will strongly stamp the issue with its own peculiarities. This is forcibly illustrated in the case of the Devon cattle, an ancient race, whose color, form, and characteristics are strikingly perpetuated, sometimes to the sixth or even later generation. So far is this principle carried by many experienced breeders, that they will use an animal of indifferent external appearance, but of approved descent (blood) in preference to a decidedly superior one, whose pedigree is imperfect.

3rd. All the conditions of soil, situation, climate, treatment, and food, should be favorable to the object sought.

4th. As a general rule the female should be relatively larger than the male. This gives ample room for the perfect development of the fœtus, easy parturition, and a large supply of milk for the offspring, at a period in its existence when food has a greater influence in perfecting character and form than at any subsequent time. Exceptions to this rule may be made when greater size is required than can be obtained from the female, and especially when more vigor and hardiness of constitution are desirable. For this purpose, strong masculine development in the size is proper, and if otherwise unattainable, something of coarseness may be admitted, as this may be afterwards corrected, and nothing will atone for want of constitution and strength.

6th. Pairing should be with a strict reference to correcting the imperfections of one animal by a corresponding excellence in the other.

7th. Breeding in-and-in, or propagating from animals nearly allied, may be tolerated under certain circumstances, though seldom; and only in extreme cases between those of the same generation, as brother and sister. When the animal possesses much stamina and peculiar merit, which it is desired to perpetuate in the breed, it may be done either in the ascending or descending line, as in breeding the son to the parent, or the parent to his own progeny. This has been practiced with decided advantage, and in some cases has been continued successively, as low as the sixth generation.

8th. It is always better to avoid close relationship, by the selection of equally meritorious stock-getters of the same breed from other sources.

9th. Wholesome, nutritious food, at all times sufficient to keep the animals steadily advancing, should be provided, but they must never be allowed to get fat. Of the two evils, starving is preferable to surfeit. Careful treatment and the absence of diseases must be always fully considered.

10th. Animals should never be allowed to breed either too early or too late in life. These periods cannot be arbitrarily laid down, but must depend on their time of maturity, the longevity of the breed, and the stamina of the individual.

11th. No violent cross or mixing of distinct breeds should ever be admitted for the purpose of perpetuation, as cattle of diverse sizes; horses of unlike characters, the merino and long-wools, or even the long or short, and the middle-wools. For carcass and constitution, these crosses are unexceptionable, and it is a practice very common in this country, and judicious enough when the whole produce is early destined for the shambles. But when the progeny are designed for breeders, the practice should be branded with unqualified reprehension.

W. A. C.

Ancaster, Dec., 1860.

Herefords in Canada.

Guelph, 21st Nov., 1860.

My Dear Sir,—You no doubt will remember the remark I made when with you in July last, at the Royal Agricultural Exhibition held at Canterbury, England, when viewing the splendid lot of Herefords exibited there, so incomparably superior to what we had seen at our Provincial Show for some years, viz: that I was inclined to purchase four or five to show Canadians what pure Herefords were. I had hoped to have met with you again at Dumfries, but only staying there one day had not that pleasure; being anxious to visit the Yorkshire Show, which I did, and found it equally as attractive, if not more so, than the one at Dumfries. After visiting many Shows and a large number of the most noted herds of Short-horns, I paid a visit to Monmouthshire and Herefordshire, and being in the midst of Hereford cattle took occasion to view several herds, and, from the appearance of the cattle and good reputation of the breed, I fully made up my mind to try and secure some of the young animals we so much admired at Canterbury, a number of which would be sold the end of September. On my return to London I requested my brother to attend Lord Bateman's sale, to take place on the 25th September, and purchase for me four heifers and one young bull, as I was returning to Canada on 30th August, and could not attend. He did so, and the result was, he purchased eight heifers and the finest young bull, and I am pleased to inform you at this time I have the nine here in good condition, four of them were at Canterbury, one of which was awarded the first prize for heifers under two years old; her companion and the two younger ones commended. The whole class of heifers was commended.

With such a beginning I propose to establish a herd of Herefords at my farm, in Puslinch, and trust that for the future this breed of cattle will receive the attention they merit, in this Province. Many, no doubt, will think it strange of me commencing a herd of Herefords, par-

ticularly so when I state my object in doing so is founded upon the merits of them, as a distinct breed, and, in my opinion, so much superior to what most Canadians think them, that I am determined to try and see how they will suit our wants and climate. If all is well I intend to give them a fair trial; and I trust to show a herd of Herefords next year at the Provincial Exhibition, London, which will at least attract attention. The cattle will have to rest upon their own merits. let the results be what they may. I feel sanguine they will suit this Province, and, when better known, become appreciated.

You will remark this herd is intended to be kept at my farm in Puslinch, the adjoining township to Guelph. I mention this, as it is my present determination to keep at Moreton Lodge the best herd of *Short Horns* I can breed, and shall endeavor to have a herd second to none in America, having some very promising young stock growing up, and expecting to have about twenty calves during the year. I am pleased to say the Cotswold sheep I brought out, as also my previous flock, have done well, and I hope their produce will increase my flock of pure Cotswolds next summer to nearly three hundred, which I trust will equal, upon the whole, any flock even in Britain, for quality.

It is pleasing that the crops the past season were good and the weather so fine to secure them. I have an extraordinary crop of turnips, and the past season has been the finest for agricultural operations I ever remember.

Any remarks you may think proper to make respecting the Hereford breed of cattle, and my importation (from what you saw of the breed when in England) in the *Agriculturist*, as regards their adaptation to Canada, &c., will oblige,

Yours truly,

FRED. WM. STONE.

PROF. BUCKLAND, Toronto.

[We are most happy to learn that our respected correspondent has received, "safe and sound," the animals purchased for him at the late sale of Lord Bateman's renowned Hereford blood, which perhaps stands unequalled for purity, size, and symmetry, in England. The Herefords we examined in company with Mr. Stone at the Annual Exhibition of the Royal Agricultural Society of England at Canterbury, last July, were certainly superior to anything we ever saw before; although we had formerly good opportunities of observing the best specimens of this valuable race of cattle. We do therefore with the greatest sincerity congratulate Mr. Stone and this Province on having safely received his costly importation, and we trust that this "experiment," as Mr. Stone terms it, will prove profitable to himself and beneficial to the country. The very few Herefords that have been *occasionally* shown at our Provincial Exhibitions, (and in general this breed is wholly unrepresented,) could scarcely be considered even second-rate animals; and in the United States, at least till very recently, matters have not been much better. We found last summer, that during an absence of thirteen years from England, the Hereford cattle, as well as many other things connected with agriculture, had greatly improved. We are glad to find that Mr. Stone will still continue his short-horn herd, for which he deservedly enjoys a high reputation on this continent, and we think his determination judicious to keep the two breeds quite distinct on separate farms. We shall have much pleasure in complying with our correspondent's request, and will give, in an early number of this journal our impressions of the Hereford cattle, from what we heard and saw of them during our recent visit to England. We shall also have something to say on several other matters that came under observation.

Since our correspondent's letter came to hand we have found the following information respecting Mr. Stone's importation, in one of our most valued British exchanges, *The Mark Lane Express*, published in London, and which cannot fail to interest our readers.]—ED.

HEREFORDS FOR AUSTRALIA AND CANADA.

Last week three young bulls of this famed race of cattle left the port of London for Mr. White of Sydney. They were selected from the following herds, viz: that of the Rev. Archer Clive, Whitfield, Mr. Evans, Llandowlais, and Mr. Rees Keene, Pencraig, Monmouthshire. On the 24th the Steamer *Anglo-Saxon* sailed from Liverpool with one of the largest and most choice selection of these animals we have ever known leave our shores at one time. They were purchased at the recent sale of Lord Bateman's herd by Mr. J. J. Stone, of London, for his brother, Mr. F. W. Stone, of Moreton Lodge, Guelph, Canada West, who has long been a very successful breeder of short-horn cattle and Cotswold sheep; but now having added another farm to his estate, he is about to commence breeding Herefords. This gentleman, from a pure love of agriculture, takes a prominent part in the progression of that district, being President of their Agricultural Society, at whose exhibition he had frequently seen with regret awards given

to animals of the Hereford breed having but little claim to the intrinsic merits of the pure-bred animal. This induced him to have the following purchases made upon his account at Lord Bateman's sale, viz: Gentle, Baroness, Hebe, Nelly, Verbena, a daughter of Vesta (Vesta is an own sister to Gentle), a daughter of Little Beauty and own sister to Baroness, a daughter of Peeress and own sister to Nelly—which, together with the bull Patriot, are destined to form the basis of the Moreton Lodge herd of Herefords. They are all of prize-taking families; and Gentle and Baroness were two of the four heifer-winners of a first prize at Leominster, 1859, and are own sisters to Nymph and Vesta, the winners of first prizes at Cardiff and Leominster, 1858, and second at Hereford. Vesta also took a first prize at Barnstaple, 1959, and Hebe and Nelly were winners of first prizes at Hereford, 1859, Dorchester, 1860, as well as at Canterbury. With the exception of Vesta's daughter, the animals purchased are all by Carlisle (923), the winner of the first in his class at Cardiff, 1858, besides eight other prizes at different agricultural meetings. Vesta's daughter is by Shobdon (1725). Shobdon by Carlisle was a winner of a second prize at Barnstaple. On the same day that these animals left Liverpool for Canada two young bulls from Mr. Duckham's herd sailed from London, in the *Star of Peace* for Sydney, viz: Cronkill (1558) and Emperor. The former was bred by the right Hon. Lord Berwick, and by his Lordship's celebrated bull Attingham, (911); Attingham was a winner of first prizes at the Shrewsbury and Carlisle meetings of the Royal Agricultural Society of England; Cherry the 7th, Cronkhill's dam, won a third prize at Windsor, and second at Lewes. Emperor is by Napoleon the 3rd (1019), winner of the first prize at Chelmsford, and medal with high commendation at Paris, where his sire Walford (871,) won the first prize of 1,000 francs and gold medal; his dam Carlisle won the first prize in her class at the Carlisle, Chelmsford, and Salisbury meetings of the Royal Agricultural Society of England. Animals so descended cannot fail to improve the herds in which they may be placed.

Promoting the Circulation of the Agriculturist, Evening Meetings for Discussion, &c.

Editor Agriculturist.—The time has come for you and all the friends and well wishers of our Canadian *Agriculturist*, to put forth all their efforts to secure a large increase of subscribers to your useful paper and welcome visitor to our families. Can you not hold forth inducements to such as may act as agents, by offering them prizes, thus following the example of the *Genesee Farmer* and other papers of like character? This will secure a large number of persons who will feel an increasing attachment to the paper and an anxiety for its prosperity, and many of these agents will probably become contributors.

The long winter nights have commenced, and farmers and their sons, and mechanics, will need something to interest them, and we hope your paper will do its part in this respect. I hope many of your contributors will suggest some topics in the discussion of which both farmers and mechanics may become interested and profited from week to week at meetings appointed for the purpose.

For instance, suppose we appoint a meeting in school-house section No. ——, for Tuesday evening, 4th December, for the purpose of discussing the subject as to what are the kinds and classes of fruit which we may cultivate with the greatest profit, including the age at which the tree should be planted out, the time of the year and method of cultivation, taking into account our climate, our soil and our particular locality.

Next meeting, a week from to night, namely the 11th December—subject, agriculture as a profession; there show its antiquity its great importance to our country; its healthfulness as a profession; its comparative freeness from trouble and disappointment; the importance of storing the minds of our children with these thoughts, and the great utility of agricultural papers being introduced into our families.

Next meeting, 18th December,—subject, agricultural societies, their origin, their design or object; their progress in Canada; their reflex influence on the country.

Next meeting, 24th December,—subject, draining, its importance; different methods of making underground drains, cost per rod in building, &c.

Now we have some leading spirits in almost all our school sections, who can get up such meetings and lead in these discussions, to the interest and profit of all. S. King.

Ryckman's Corners, Nov. 21, 1860.

Agricultural Intelligence.

The Vintage of France and Germany.

From an elaborate Report of the great London House of Messrs. Groves & Co., we learn that the results of the vintage in Europe is generally of a most unsatisfactory character. In the spring, the vines were, upon the whole, promising, but the almost unparalleled cold and wet of the summer and autumn, prevented the proper ripening of the fruit, and consequently affected most injuriously the quality of the wine.

In several districts the grapes are represented as being ripe, green, and perfectly rotten, so that where pains have not been taken in separating them, the wine must necessarily be of the most common description. All authorities seem to agree that so wet and cold a season has not occurred since 1816.

Should Seed Wheat be brought from the South or North?—I perceive from the remarks of N. S, in July number of the *Farmer*, that the mooted question of "Whether wheat for early ripening should be brought from the North or South,' is yet unsettled. Near the city of Edinburgh, in Scotland, is a tract of land cultivated by intelligent, scientific farmers. These practical men, every two or three years, import their seed wheae from the London market, three or four hundred miles south of them, and it pays well, as they gain two weeks or more in that cool, dripping climate—where I recollect the papers stating, one wet season, they had not been able to gather their oats yet in December. For corn, the very reverse of this should be the rule. If it is important to have corn to ripen early bring it from the North, where it must mature early or be caught hy frost I have raised corn, Gourd seed, from the rich Miami bottoms near Cincinnati; it grew large and very promising, but its habits of late ripening, exposed it to frost in the last of September, and but few sound ears could be found in a ten-acre field.— *Genesee Farmer.*

Horticultural.

Horticultural Hints.

But little can now be done in the flower or vegetable garden, or shrubbery, except to see that all tender things are properly protected, and the clearing away, if not done before, all cuttings, leaves, &c., which give an untidy appearance to a place. Hitherto the weather has been favorable to the finishing of out-door operations, but as severe cold may now be expected every day, not a moment should be lost in seeing that the mulching and protection of such plants as require this kind of treatment are made as perfect as possible. From want of proper attention to these matters many of our choicest plants are injured or destroyed during our inclement winters and changeful springs. Manure may now be got out ready to be incorporated with the soil when the season for such operation arrives. In this cold climate, farm-yard dung, when exposed on the surface, does not lose much of its ammonia and deliquescent salts; the chief risk is in early spring, when the heavy rains which frequently accompany the melting of the snow are likely to wash away the warm soluble portion. This may in most cases be easily prevented by a little extra attention, which will be found amply to repay the trouble.

At this leisure season, plans should be formed for conducting operations the coming year. Whatever defects were noted down during the past season should be carefully corrected the next. In this way a place may be progressively improved, without serious outlay at any one time, and without so sweeping a change as might be felt undesirable, if not positively objectionable, for a few years to come. Mice are frequently found to do irreparable injury to fruit trees during deep and protracted snow. When the stems are not artificially protected it is a good plan to keep the snow around them closely trampled down so as to form a hard substance; which will often prevent, or at least mitigate the evil. The treading down of the snow in case of trees that are winter mulched is deserving particular attention.

The conservatory or greenhouse require vigilant attention in order to keep plants in a healthy condition. As wealth and taste increase, it is pleasing to see these indices of comfort and refinement increase also. Many scores of greenhouses and cold vineries have been erected in Canada during the last few years. The great thing is to erect plant-houses on such principles as will effectually keep out frost during the severest weather, without incurring too heavy an expenditure of fuel, and injuring the plants by too much heat and imperfect ventilation. Something will depend upon the mere situation of the house, a warm sheltered aspect, when obtainable, should always be secured. During severe weather every crack or chink, especially in the walls or foundation, should be carefully filled up with list or cotton wool, which will tend to keep an equable temperature, and prevent what is so peculiarly injurious and often destructive to plants, cold draughts and sudden transitions from heat to cold. Much may be done in extreme weather to economise fuel and promote the health and beauty of plants by

covering the sides and even roof of the house by matting or any kind of sheeting. We saw this done with excellent effect in a small greenhouse, belonging to a gentleman of taste, in one of our back townships, in a hard winter a few years since. Artificial heat should be conducted with caution through the colder parts of the house; pans of water are beneficial to moisten the atmosphere by evaporation, and the syringe is frequently required for this purpose, and to clean the plants. Mildew is apt to make its appearance at this season, and usually attacks the most crowded and weakest plants, or such as have been too much exposed near the door, or to the undue action of heat. Changing these conditions will sometimes arrest its progress, and in severe cases sulphur water may be used with excellent effect. Flower of sulphur is mixed with water and distributed over the plants with a syringe; or dry sulphur may be sprinkled on them after they have been wetted, or the sulphur will not adhere. The closest attention to cleanliness and ventilation, when the external temperature will admit, that is when it is about that of the house, is essential to the healthy condition of plants.

To Keep Grapes Fresh in Winter.

As many persons fail in keeping grapes thro' the winter, we will briefly state the conditions of success in the experiment.

Grapes must be kept cool. Heat, and especially alternations of heat and cold, will promote decay. Let the grapes be kept in as cold a place as possible without freezing: and indeed a degree or two of frost will not hurt them, if they thaw out very slowly.

They should be kept dry. Heat and moisture are the two great agents in producing decomposition. There are very few cellars which are dry enough for grapes. A chamber or retired closet is a better place. Yet, if the house is warmed by a furnace, or even by coal stoves, the air will probably be made so very dry in the chambers, that the grapes will shrivel up and nearly spoil. Let this be guarded against.

In gathering grapes, wait until they are fully ripe; then make sure of a fine, dry day, and pick the clusters during the middle of the day—say between nine o'clock and four. Carry them in baskets to a cool, airy chamber, and spread them on the floor. Pick them over carefully, culling out all bruised, unripe or defective berries, and let them stand in baskets holding about half a bushel, for a week or ten days. In this time, they will have gone through "the sweating process," and may then be packed down for winter.

In packing, various methods are employed, and there does not seem to be much choice between them. A very good way is this: Take boxes holding a peck or half a bushel, place a layer of cotton batting at the bottom, then a layer of grapes, then layers of cotton and grapes alternately, until the box is filled. To prevent the clusters pressing too heavily on each other, some practice putting a wad of cotton between them. When the box is full, put on the cover and set it away in a cold place.

Some persons use champagne baskets for packing in, arguing that the circulation of air through the meshes of the basket favors the preservation of the fruit. Others again paste paper over the whole, to keep out all air! We will not undertake to pronounce upon either of these methods, for we know that grapes keep well in both, provided they are kept where they are neither too hot or too cold, neither too moist or too dry.

A friend of ours keeps his grapes in a garret, where the mercury often falls to 20° above zero. But when a very cold snap approaches, he throws a heavy coverlet or two over his boxes, and they get no harm. At any day, from November till April, he can entertain his guests with the plumpest and freshest of grapes. With him, the Isabella is the best keeper; the Diana next best. *American Agriculturist.*

Domestic.

Saleratus.—If there is any practice that is more destructive of good flour, and which more readily turns what was meant to be healthy food into most deadly poison, than the use of saleratus, we would like to know it. We loathe the smell of the article in every kind of mixture, that is intended for food; and consider its use detestable. The Philadelphia *Ledger* thus remarks upon the use of this abominable alkali:

"If our western friends can in any way teach their wives, daughters, or cooks, to keep the pearlash out of the bread, all the yellow people, especially the yellow children, who are supposed to be turned yellow by the fever and ague and billious fevers will soon be turned white. It is a great mistake to suppose that the yellow countenances of the west come from bile, when it is only the enormous quantities of pearlash eaten in the bread that is reflected through the skin. Bread is the staff of life, it is said—and so it is;—but it is the staff of death too in this country Bad bread kills about as many people here as bad rum So many people eat poisonous pearlash for bread that they die by inches. Dyspepsia—that great monster disease of the country, that deranges the liver, brings on costiveness, and thus finally kills the human victim,—is half the time 'pearlash.' Here in the east—out of New England—we have nearly driven off the pearlash-saleratus cooks, but not altogether. Pearlash lives here yet in bread, but in cities and towns we have nearly whipped out the mur-

derer. In the distant western towns, beyond the good hotels of the lakes and rivers, pearlash, under the name of saleratus, is king. It is pearlash for breakfast, pearlash for dinner, pearlash for supper. It is not any wonder then that the people of the east turn yellow in the west, and sicken; not of fever and ague, bilious and congestive fevers, but of pearlash three times a day."

Hop Yeast.—Peel and slice four good-sized potatoes and put into two quarts of water, together with two handfuls of hops—let it boil until the potatoes are soft, then put as much flour in a pan as it will require to make a stiff batter. Add two tablespoonfuls of sugar; one of salt, one of ginger; then, while boiling hot, strain it through a sieve over the flour, stirring while pouring it on. When cool add a teacup of yeast, and let it remain where it is warm until it gets light, then stir in Indian meal until it is dry enough to roll and cut, and make yeast cakes, which are far preferable for summer, as they will keep without any trouble, if they are dried through, put in a bag, and kept in a dry place. Care should be taken that the sun does not come upon them while drying, as it will scald them if it is hot. The yeast will keep for a number of weeks in winter by putting it in a stone jar, and keeping in the cellar.

Sweet Corn Boiled when Ripe.—For several years I have saved my sweet corn that ripened on the hill, and cooked it in the winter, and found it almost equal to the "fresh article." My plan is this: I gather it when ripe, dry it in the ear, and lay it by for use. When wanted, shell a portion, say a quart; put it in a kettle with water sufficient to keep it covered, and boil; put in soon after a half-pint of lye; boil till the cuticle or skin of the kernel becomes soft and is easily removed; put it in cold water, wash and rub with the hands till clean. Now boil slowly for several hours, or steep till done. Serve with butter and salt, or eat with milk Better than "samp." May be kept several days in the water in which it was boiled. Heat when wanted. So says J L. H., in *Iowa Farmer*.

Excellent Rice Pudding.—The yolks of four eggs; one teacup of boiled rice; one pint of milk and a little salt. Take the whites of the four eggs and one pound of white sugar, a few drops of lemon juice; make a frosting, and just as the pudding is done, spread it on, and set it in the oven to harden.

To Clean Knives.—I find, says a writer in the Germantown *Telegraph*, that to take one-half of a raw potatoe and dip it in brick dust and apply it to knives, has an excellent effect in brightening them—a desideratum to all housekeepers and families certainly most devoutly to be wished.

A young dog, alive and kicking, was picked up at sea, not long ago, though neither land nor vessel was in sight.

Statements of Exhibiters.

WINTER WHEAT.

Statement of Henry Moyle, Brantford,

Awarded Canada Company's premium of $100, *for* 25 *bushels Winter Wheat.*

The wheat, Blue Stem, to which the Canada Company's prize of one hundred dollars was awarded, was grown in the Township of Brantford, from seed imported the year before from Ohio, and known there as "Kentucky White." The soil is a light sandy loam, with a subsoil of redish earth, in some places nearly becoming clay, with spots of sand and gravel. The depth of soil available for cultivation, is only limited by the capability of the plough to turn up. The field in which the wheat was grown had been in grass for four years; was ploughed up early in the summer, say June, was harrowed three or four times to keep down the grass and weeds, and the sheep turned on it. After harvest, in August, I put on the gang plough, and kept it and the harrow at work till the time for seeding. It was sown on the 9th, 10th, and 12th, of September, with a drill, at the rate of one bushel and a peck to the acre, and cut the last week in July. The injury sustained by the midge was not to any appreciable extent, though at one time I feared it would be serious, as the fly were very numerous, or appeared to be so to me. I regret I cannot do more than give an estimate of the produce, having only threshed one stack for seed. I do not however expect it will be more than 28 bushels per acre, as it was considerably injured by the frost in the winter and spring.

Henry Moyle.

Brantford, Nov. 22, 1860.

BUTTER.

Statement of Thomas Bolton, Guelph,

Awarded Silver Medal for best June Butter.

My dairy consists of eight cows, which are milked regularly twice a day. I use earthenware pans, which are scalded with hot water and then cooled with cold water every time they are used. I let my milk stand 48 hours; I stir my cream every morning,

churn twice a week, and use a box churn. I bring my cream out of the cellar over night and let it stand till the temperature is about 60°, then it generally takes from 40 to 60 minutes churning. When the globules of cream begin to break, I put a little cold water into the churn, and continue to do so till the butter is well gathered. I have my butter tray scalded with boiling water, and rinsed with cold water, then take the butter out of the churn with a wooden ladle, and first work out the buttermilk; secondly, wash it well with clear cold water, and thirdly I work in the salt in the proportion of about one pound of salt to twenty pounds butter; after which I wash it again with cold water, and let it stand in the butter tray in the cellar till evening, then work it again and leave it till morning, then work out all the water possible. It is then ready to pack in the firkin. The manner in which I prepare the firkin for use is as follows: I first put a handful of salt and one of bran into the firkin, and also one pail of scalding water, and cover it close for an hour, after which I empty it and fill with cold water and let it stand a day, then empty and rub well with salt; the firkin is then ready for use. I pack the butter with a wooden ladle; when the firkin is full I put a cloth on the butter and cover the cloth with a thick layer of salt to keep the air from the butter. I use the common salt, rolled, and I consider it the best.

THOMAS BOLTON.

Guelph, September, 1860.

FLAX.

STATEMENT OF ALEXANDER & Co., NORVAL,

Awarded special premium of $20, *for collection of fibres adapted to manufactures, the growth of the Province.*

Straw purchased from farmers, with the seed on. The return to those who cultivated the flax for us, varied from $25 to $50 per acre. The sample exhibited was scutched, without having the advantage of passing through the breaking rollers, which we could not get fitted up in time. The cost to us of bringing the fibre into the state of the sample exhibited is 8 to 9 cents per lb.

A grizzly bear in the mountains of California is supposed to have killed no less than seven men in the last year.

Miscellaneous.

SCIENCE IN FAMILIAR THINGS—SALTING THE STREETS TO REMOVE SNOW—ITS EFFECT UPON HORSES' HOOFS.—Coming to our office the other morning, we saw a man strewing salt along the railroad track for the purpose of melting the snow. This is the common practice on our city railroads, but objections have been made to it on account of its injurious effects on the horses' feet. Both of these facts—the melting of the snow by the salt and the injuries to the horses' feet by the liquid—are instances of the application of the most beautiful and subtle principles of nature to the common affairs of life. There are several substances besides snow and salt which are solid while separate, but which, on being placed in contact, become liquid; why they do so is wholly unknown. It is just as completely a mystery to Professor Faraday or Professor Doremus as it is to the most ignorant laborer that strews the snow with salt. But the cold that results from this change of the two substances from the solid to the liquid form is one of the exhibitions of latent heat—a matter which has been the subject of profound and laborious investigations, and is found to play a part in the operations of steam and air engines, in the artificial making of ice, and, indeed, in almost all the mechanic arts. The subject, when properly stated, is perfectly simple.

If a piece of very cold ice, of a temperature far below the freezing point, is brought into a warm room, the ice will become warm gradually till it reaches the temperature of 32°, at which point it will remain till the ice is all melted, when the increase of temperature will be resumed, and will go on till the water becomes as warm as the air in the room. If the relative temperature of the room and ice is such that the cold ice is warmed one degree a minute, it is found that the temperature rises at this rate till it reaches 32°, at which point it stops and remains for 140 minutes, during which the ice is all melted, after which the rise in the temperature again goes on at the rate of one degree a minute. The heat which enters the ice while melting does not affect the thermometer and is not perceptible to the senses; it is hidden, and therefore called latent heat. The sensible heat, which becomes latent in the change of bodies from the solid to the liquid condition, varies with different substances—in water, as we have seen, it is 140°; in sulphur it is 144°; in lead, 370°; and in zinc, 493°.

Now, it is found that when two solid substances are changed to the liquid condition by simply being brought in contact, this change is accompanied by the conversion of sensible into latent heat; a large amount of heat is rendered latent, and this is absorbed from surrounding substances. This is the philosophy of freezing mixtures. If one pound of salt is mixed with two pounds of snow and a thermometer placed in contact with

the mixture, as the mass melts it will absorb so much heat from the mercury as will carry it down to 5° below zero. If a horse's foot is in the mixture a portion of this heat must come from the foot, and it is not strange that it should leave the part so intensely cold as to prove injurious.—*Scientific Ameriman.*

Unlucky People.—It is part of the great fact of luck—the indubitable fact that there are men, women, ships, horses, railway engines, whole railways, which are lucky, and others which are unlucky. I do not believe in the common theory of luck, but no thoughtful or observant man can deny the fact of it. And in no fashion does it appear more certainly than in this, that in the case of some men cross-accidents are always marring them, and the effect they would fain produce. The system of things is against them. They are not in every case unsuccessful, but whatever success they attain is gained by brave fighting against wind and tide. At college they carried off many honors, but not such luck ever befel them as that some wealthy person should offer during their days some special medal for essay or examination, which they should have gained as of course. There was no extra harvest for them to reap; they could do no more than win all that was to be won. They go to the bar, and they gradually make their way; but the day never comes on which their leader is suddenly taken ill, and they have the opportunity of earning a brilliant reputation by conducting in his absence a case in which they are thoroughly prepared. They go into the church and earn a fair character as preachers; but the living they would like never becomes vacant; and when they are appointed to preach upon some important occassion, it happens that the ground is a foot deep with snow.—*Fraser's Magazine.*

Horace Greely on Agricultural Papers. There are at present some fifty or sixty periodicals published in our country devoted to farming—as many, I presume, as in all the world beside. They have been built up at great expense of talent, labor, and money; for when Col. Skinner started the first of them at Baltimore, some forty years ago, the idea of teaching farmers anything in *that* way was hooted by them as ridiculous, and he found it hardly possible to give his early numbers away. Hundreds of thousands of dollars have been spent on these publications; and they are this day, in my judgment, doing more to promote the true growth of the country, and the substantial, enduring welfare of our people, than Congress, the Army and the Navy, for the support of which they are taxed some forty millions per annum.

Climate.—The effect of climate on the human constitution is shown in a striking manner by the inhabitants of Australia, who in the course of two or three generations, lose the corpulence characteristic of Englishmen, and become a tall, gaunt, raw-boned race, like the inhabitants of our southern States.

How I shot my first duck, and what sort of a duck it was.—In the morning, when the light was about the colour of a grey cat in a cellar, Tim roused me up, and we sallied forth. We marched silently along shore, "looking sharp" through the reeds, Tim constantly whispering me to "keep my eye skinned." The gun felt very heavy, and in that peculiar light looked about fifteen feet long. On we strode, my pulse going like that of a volunteer at Buena Vista. Suddenly says Tim softly: "Ah! There's a chance, by Jove! Now, my boy, all ready?" "Eh, chance, where, at what?" Tim put his finger on his lips, and making me crouch down, pointed through the reeds. In a minute, sure enough, I saw a duck gracefully bobbing up and down, about fifty yards off or less. I became awfully excited. "Let, let me shoot him Tim?" "Certainly; crack away," I knelt down; my fingers trembled like those of a surgeon at his first operation. The duck looked about the size of a turkey gobbler to my distorted vision. It was a fearful moment. However I recovered myself by a resolute effort, brought the gun up, took a long, murderous aim, my fingers pressed the trigger—whang! I beheld the sky, and fourteen hundred thousand stars perpendicularly before me. Upon examination I found this phenomenon was occasioned by my horizontal position on my back, combined with the concussion of the shot. "You've hit him," cried Tim; "he's wounded. Quick, quick, take my gun, while I load yours." I looked at my weapon. I had fired both barrels at once. I looked at the duck; he was bobbing up and down violently. Considerably bewildered, I, however, seized Tim's gun, resumed my position took another deadly aim, and fired. "T'other barrel! quick, or he's off!" cried Tim. Bang! "By George; you've missed him! He's—no, he can't fly?" See him spin round. Here, give him one more. Mind, aim carefully. Now!" Bang! fiz-z-z! bang! I saw the sky, and one thousand more planets than before. When I arose, that diabolical duck was still there, spinning around more merrily than ever. "Tim," said I, "that duck is remarkably tenacious of life." "Ye—yes. The fact is, ducks *are* generally, especially canvas-backs; they are called so on account of the thickness of their skin. I'm convinced that's a canvas-back." "Tim," said I, "I'll take the skiff and shove out there and get him. You wait here. He's nearly gone now." "Yes; I'll go back to the house and order breakfast. Our shots have spoiled further sport for this morning. I'll have things ready by the time you get back." And without waiting for any remonstrance, Tim walked rapidly off. I got into the skiff, shoved out, reached the duck (who appeared, as I advanced, to have his head entirely shot off), picked it up; and found that—*it was a decoy!* My remarks to Tim, upon rejoining him at the hotel, I have upon reflection, concluded to omit.—*Wilke's Spirit.*

Peas a Substitute for Potatoes.—Professor Buckman, of the Royal Agricultural College at Cirencester, in a report on the agriculture on the south coast, remarks that the vast extent of grey peas cultivated there strikes a stranger as somewhat curious, until he finds out that to a great extent they take the place of beans as a feeding crop; and besides, that peas are even now used as an article of food amongst the poor to a greater extent than at present prevails in most parts of England. "Go where one will," he says, "the hucksters' shops will be found to exhibit a large pan of fried peas, in the centre of which is a half-pint measure indicative of the manner in which it is retailed to the poor; and a good and serviceable food it is. This is a matter of no small importance when we consider their value in a muscle-making point of view; and if it be known that 1lb of peas is equal to about 20lbs of potatoes in real feeding and strength-giving properties, no country need regret the loss of the latter fickle plant, if it has a good store of peas to fall back upon." If this calculation be correct, a coomb of peas, weighing perhaps 16 stone, at 23s, which is more than their present price, would be equal in point of nourishment to 80 bushels of potatoes, costing, at 5s. per bushel, £20. But, according to the table of Prof. Johnston, which is more nearly in agreement with the report of the members of the French Institute, the proportion of nourishment in potatoes, as compared with peas, is about 1 to 5. But even at this rate, potatoes at 5s. a bushel are four times as dear as peas, considering their relative nutriment. Our guardians and friends of the poor should remember this. —*Bury and Norwich Post.*

A Calumniated Bird.—There are many well-known proverbs relating to the power of calumny, and the readiness with which evil report is received and retained, notwithstanding it has been repeatedly proved to be false and libellous. The common goat-sucker is a good instance of the truth of this remark, for it was called *aigotheles* or goat-sucker by Aristotle, in the days of old, and has been religiously supposed to have sucked goats ever afterwards. The Latin word *caprimulgus* bears the same signification. It was even supposed that after the bird had succeeded in sucking some unfortunate goat, the fount of nature was immediately dried up, and the poor beast also lost its sight. Starting from this report all kinds of strange rumours flew about the world, and the poor goat-sucker, or night-jar, as it ought more rightly to be called, has been invariably hated as a bird of ill-omen to man and beast. As usual, man reviles its best benefactor, for there are very few creatures which do such service to mankind as the night-jar. Arriving in this country in the month of May or June, it reaches our shores just in time to catch cock-chaffers, as they fly about during the night in search of their food, and does not leave us until it has done its best to eat every chaffer that comes across its path. The damage which is done by these brown-backed, white-ribbed, hook-tailed beetles is almost incredible, for they are not only extremely destructive in their larvæ states, but are scarcely less voracious when they have assumed their perfect form. Passing a life of three years or so below the level of the ground, the larva of the cock-chaffer shears away the grass-roots and other subterranean vegetation with their scissor-like jaws, and are constantly busy in satiating the hunger of their huge stomachs, which occupy nearly the whole of the body of the grub. When they have passed through their earlier changes of form, the cock-chaffers rise from the ground, and, taking to flight, settle upon the trees, and devour the foliage just as they had previously fed upon the roots. Sometimes a whole series of trees may be seen which have been entirely stripped of their leaves by the chaffers. I well remember seeing a row of trees that extended along a country road near Dieppe, that had been totally despoiled of their foliage, and which stretched their naked branches abroad as if they had been blasted by the destroying breath of the Simoom.—*Routledge's Illustrated Natural History.*

Canadian Mammoth Trees.—Few people have heard of the mammoth walnut tree that grows in the township of Metcalfe, and that one of extraordinary growth that stood, until Saturday last upon Captain Beer's farm. This giant of the forest attracted the attention of the firm of Smith, Williams & Co, of 442 Washington Street, New York, and, having purchased it of Captain B., preparations were made to lay it low. A number of people were invited to see this, the largest tree of Western Canada, fall, which at last took place with a tremendous crash. At one foot above the roots it measured thirty-six feet, where the branches commenced with four great limbs that appeared as large in their girth as some of the surrounding trees. As it lay, the butt measured twelve feet of its length. The wood is beautifully marked and variegated with knots and veins, and will work up into an immense number of gun and pistol stocks, and ornamental cabinent work.—*London (C. W.) Free Press.*

Central Heat of the Earth.—The rate of increase of heat is equal to one degree of Fahrenheit for every forty-five feet of descent. Looking to the result of such a rate of increase, it is seen that at seven thousand two hundred and ninety feet from the surface the heat will reach two hundred and twelve degrees, the boiling point of water. At twenty-five thousand five hundred feet it will melt lead; at twenty-one miles melt gold; at seventy-four miles cast iron; at ninety-seven miles soft iron; and at one hundred miles from the surface all will be fluid as water, a mass of seething and boiling rock in a perpetually molten state, doomed possibly never to be cooled or crystallized. The heat will exceed any with which man is acquainted; it will exceed the heat of the electric spark, or the effect of a continued voltaic current. The heat which melts platina as if it were wax, is as ice to it. Could we visually observe its effects, our intellect would afford no means of measuring its intensity. Here is the region of perpetual fire, the source of earthquake and volcanic power.—*Recreative Science.*

Interesting Experiments —If a wafer be laid on a surface of polished steel, which is then breathed upon, and if, when the moisture of the breath has evaporated, the wafer be shaken off, we shall find that the whole polished surface is not as it was before, although our senses can detect no difference: for, if we breathe again upon it, the surface will be moist everywhere except on the spot previously sheltered by the wafer, which will now appear as a spectral image on the surface. Again and again we breathe, and the moisture evaporates, but still the spectral wafer re-appears. This experiment succeeds after a lapse of many months, if the metal be carefully put aside where the surface cannot be disturbed. If a sheet of paper on which a key has been laid be exposed for some minutes to the sunshine, and then instantaneously viewed in the dark, the key being removed, a fading spectre of the key will be visible Let this paper be put aside for many months where nothing can disturb it, and then in darkness be laid on a plate of hot metal, the spectre of the key will again appear. In the case of bodies more highly phosphorescent than paper, the spectres of many different objects which may have been laid on in succession, will, on warming, emerge in their proper order.—*Lewes' Studies in Animal Life.*

Spiral Tendency of Organic Bodies.—The most superficial glance reveals a spiral tendency as a general characteristic both of the vegetable and animal creation; but a minute examination traces it in every detail. An essentially spiral construction is manifested from the lowest rudiments of life upwards throughout every organ of the highest and most complex animal. The beautifully spiral form of the branches of many trees, and of the shells which adorn the coast, are striking examples only of a universal law. But the spiral is the direction which a body moving under resistance ever tends to take, as may be well seen by watching a bubble rising in water, or a moderately heavy body sinking through it. They will rise or sink in manifestly spiral curves. Growth under resistance is the chief cause of the spiral form assumed by living things. Parts which grow freely show it well: —the horns of animals, or the roots of seeds when made to germinate in water. The expanding tissue, compressed by its own resisting external coat, wreathes itself into spiral curves. A similar result may be attained artificially by winding a thread around a leaf bud on a tree, so as to impede its expansion; it will curve itself into a spiral as it grows. The formation of the heart is an interesting illustration of the law of spiral growth. The organ originates in a mass of pulsating cells, which, gradually becoming hollow, gives the first form of the heart in a straight tube, more or less subdivided, and terminating at each extremity in blood-vessels.—*Cornhill Magazine.*

Pennyroyal and Peppermint.—In answer to the query of your correspondent 'Fragaria,' I would say that pennyroyal is not abundant enough in this State, or in the northwest generally, to make its collection an object particularly as it grows more abundantly in some of the older states With reference to peppermint, I have no doubt, but that it can be cultivated successfully and with profit. It has been cultivated for its oil in New York, Pennsylvania and Ohio for many years, and in 1835 its cultivation was first attempted in Michigan. So successful has it been here, that for the last twelve years, more oil has been obtained from the peppermint plantations of St. Joseph county, than from all the rest of the United States The oak-openings are generally speaking well adapted to the growth of the peppermint. The chief difficulty in the way of cultivating it on the prairie, and in certain parts of the north-west, is the fact of the root being winter-killed Where there is snow upon the ground as in parts of Wisconsin, and Minnesota, this difficulty would be removed, provided the season is long enough, but in the central and southern parts of this State, this objection would no doubt be obviated. In the northern part of the State the ground would have to be specially selected on account of its warmth. I have seen it grow well in different parts of the north-west in gardens. For further information upon the subject, we are indebted to an excellent paper read before the American Pharmaceutical Association in 1858 on the Peppermint Plantations of Michigan, by Frederick Stearns, of Detroit. J. H R.—*Illinois Prairie Farmer*

Unaddressed Letters.—Collectively speaking, persons remember and forget certain things with as much regularity as if memory and attention were the result of wheel work. A very common instance of forgetfulness is presented by persons posting letters without any address upon them. The number of times this act of obliviousness annually happens is known with the greatest precision, inasmuch as such letters are transferred to, and recorded in a bureau especially devoted to the purpose in each post-office. Now, it is found by the post-office returns in England and France, that the number of these unaddressed letters in each country is almost the same year by year. In London the number of such letters is about 2,000, being at the rate of six per day. But connected with this is another circumstance equally remarkable. A certain proportion of these letters is found to contain money and other valuable enclosures; and, like the whole number, this portion is also invariable.—*Dr. Lardner.*

Grain Going Forward.—The *Express* states that Buffalo has received and handled thus far in the present season, the enormous amount of 31,179,855 bushels of wheat, corn, oats, barley and rye, and 1,172,107 barrels of flour. Adding to the wheat its equivalent of flour, according to the ordinary rule of five bushels to the barrel, the gross grain receipts at that port from the opening of navigation to the first day of December, in the year 1860, were 37,040,390 bushels--nearly double the average receipts of the past dozen years, and almost ten million bushels greater than the greatest amount ever before received, in any one season.—*Detroit Tribune.*

Song-Birds "Tamed" by Natural Magic.—Now, let me show you the power of "Natural Magic" when practiced at the breakfast-table. It is here you will find that you possess the key to your bird's heart Invite him regularly as your guest, and bid him hearty welcome. "Dicky" must be—shall be—one of our "Happy Family." So place him on the table every morning. Let us imagine—the morning sacrifice duly paid, and all comfortably seated around the well-spread table with smiling faces—that we are about to take our grand lesson in bird-taming. Open the door, or doors of your little friend's dwelling. Let him see he is invited to be "free." Have ready on the table-cloth some little delicacy in which he delights, such as a sprig of ripe groundsel or flowery chickweed, a wee morsel of egg, or a bit of spongecake—above all, his bath. His little majesty will note all that you are doing, and readily resolve in his active mind the meaning of everything he beholds. If he has been long neglected and treated with indifference, he may not, perhaps, realize on the first morning all you expect from him. Such a thing as this would be unnateral: would it not? He will most probably alight on the edge of the open door, look out, survey all that is going forward, and return to his old quarters. The rest of the day he will devote to thinking matters over. That birds do think I am quite prepared to prove. Next morning again invite your pet or pets: again open their doors, again spread before them some tempting luxury. Mark the result, and let it be decisive evidence that birds have very retentive memories, as well as tenderly-affectionate hearts Looking up archly, your little friend will now, perhaps, leisurely descend from their seat, hop along the table, help themselves to some tit-bit, and stare you boldly—aye, saucily, in the face. They will then show their "consequence," by coquettishly approaching close to your tea-cup, and may be, with extended wing, give you battle. A week will accomplish all this, and very much more.—*William Kidd.*

A very Old Lady.—Among the visitors to an agricultural show recently held at Skipton Lancashire, was, says the *Manchester Examiner*, a lady who attracted considerable attention. The dame in question was a poor woman named Mary Walker, who was born on the 2nd of February, 1759 (the year Wolfe was killed,) and was consequently 101 years of age. George II. reigned in England at the time of her birth, and she lived through the reigns of George II, III, and IV., and William IV., to the 23rd year of Her Majesty Queen Victoria. The youngest of her sons, himself a man "getting in years," as he remarked, drew the ancient dame on a low four-wheeled carriage. She conversed readily with those around her, and on our expressing surprise at her age, she exclaimed, "Oh! I'm not done yet."

The Moving Glaciers.—In 1837 Hugo ran up a little cabin at the base of a rock which divides the Finster Aar from the Lauter-Aar tributaries. Returning in 1830, he found that it had sailed down the frozen stream to a distance of about 330 feet. Six years afterwards this nomadic mansion had advanced upwards of 2,400 feet; and when Agassiz fell in with it, in 1841, greatly to his surprise he discovered that it had performed a journey of 4,400 feet since its erection. There it was, as sound and well preserved after its lonely travels as if it had been kept under a glass case all the while In 1787, De Saussure left a ladder on the Glacier du Geant. In 1830 it was found embedded in the Mer de Glace, having traveled the intervening distance at the rate of 375 feet per annum.—*British Quarterly Review.*

The Great Western Plains of America.—These occupy a longitudinal parallelogram, nearly one thousand miles wide, extending from the Texan to the Arctic coast, and from the Rocky Mountains to the western border of Louisiana, Arkansas, Missouri, and Iowa, an area equal to the surface of twenty-four States between the Mississippi and the Atlantic, without a single abrupt mountain, timbered space, desert or lake. There is no timber on this area, and single trees are scarce. The soil is not silicious or sandy, but a fine calcareous mould. The country is thickly clad with grasses, edible and nutritious, through the year, and swarms with animal life. The climate is comparatively rainless; the rivers which abound, and which all run from west to east, serve, like the Nile, to irrigate rather than drain the neighboring surface. From their dimensions and position they may yet be the pasture field of the world, and upon them pastoral agriculture may yet become a separate department of national industry.

Vegetation.—For what infinite wonderfulness there is in this vegetation, considered, as indeed it is, the means by which the earth becomes the companion of man—his friend and his teacher! In the conditions which we have traced in its rocks, there could only be seen preparation for his existence; the characters which enable him to live on it safely, and to work with it easily—in all these it has been inanimate and passive; but vegetation is to it as an imperfect soul, given to meet the soul of man. The earth in its depths must remain dead and cold, incapable except of slow crystalline change; but at its surface, which human beings look upon and deal with, it ministers to them through a veil of strange intermediate being, which breathes, but has no voice; moves, but cannot leave its appointed place; passes through life without consciousness, to death without bitterness; wears the beauty of youth without its passion; and declines to the weakness of age, without its regret. —*Modern Painters; by John Ruskin.*

Gold and Agriculture in Australia.—There is one remarkable feature in the history of the gold-discoveries of Australia which distinguishes it from other events of a similar nature. It is this—after the first excitement had in some measure subsided, the colonists, for the most part, at once settled down again to the ordinary pursuits of life. Agriculture in particular—the most important industry to a young and rising

country—so far from being injurously interfered with, has roceived a fresh and enormous impetus from the vast amount of capital created at the "Diggings." This is proved by the liberal support of agricultural societies, the increase in the production of wool and other colonial produce, by the extensive import from Europe of agricultural implements and machinery of the most modern and expensive description, and of horses, cattle and sheep, purchased in England at enormously high prices.

Gymnasia in Colleges and Schools.—The experiment of introducing physical culture, by means of gymnastic and calisthenic exercises, as part of the system of education at Amherst College, is pronounced, after trial for one term, a decided success. The institution has a gymnasium, thoroughly appointed, with bowling alleys and wash rooms. The department is under control of a graduated professor, whose business it is not only to regulate the mode and quantity of exercise, but to impart instruction in physiology and hygiene as well. It is made obligatory upon the students to take exercise, just as it is to recite Latin and Greek. And it is found, under a careful and natural regimen, that what was feared would be disagreeable as partaking of the nature of compulsory routine, is a very pleasant pastime, under which great bodily good is realized by all the students.

Infallible Cure for Cancer.—The following recipe for the cure of this most loathsome disease, by Mr. Fugett, an old gentleman living in this country, who assures us that he has never yet known it to fail:

General Cancer Receipe.—Take pulverized beech drops, 29 grains. Red Puc coon root, 3 grains. Pure arsenic, 1¼ grains. Mix together and keep in a dark place.

To make Ointment.—Take a handful of slippery elm bark, a handful of the weed life-everlasting; put in a pot and cover them with water, and boil until you get the strength thoroughly out; then remove the herbs and strain the liquor; then cleanse the vessel and return the strained liquor, and boil slowly down to one pint; then add about one pound of rosin, and one pound of mutton suet. Continue to simmer down until the water is out. While the mixture is cooling you must stir it.

Application.—If the cancer be not raw, scarify it, and take a piece of thin cloth, half an inch larger in diameter than the cancer, and spread the salve over it, and apply it to the cancer at night; the next morning remove it and put on a good coat of powders with the salve only on the good flesh, so as to hold the powders on the parts which are raw; let the powders remain about thirty-six hours and so continue until the cancered flesh is all eaten out; if the dead flesh should not come away of itself, or sticks to the bone, you may hasten the operation by cutting it away before applying the powders. Be not alarmed at this medicine, for it will not waste away good flesh. After you know the cancer is killed, and all the cancered flesh is out and cleaned off well, you must keep the salve on the cancered parts until cured up, keeping all water from the cancer from the commencement.

I am an old man, now nearly eighty-five years of age—and I wish the world to know the virtue of this medicine and the good it has done. Beware of all counterfeits for there are many in existence. I have received many counterfeit receipts, to know if genuine, which had my name falsely signed. This is my reason for publishing this recipe. I let Dr. January of Murfreesboro, have a recipe and medicine, and requested him to let the people know the good of it; but he has not complied with my request, neither will he give his medicine out.

I hope editors generally will copy this article for the good of the people, as the medicine is a sure cure.—*American Paper.*

TOUNSEND FUGETT

Bellbukle, Bedford Co, Tenn.

Importance of Occupation.—Not unfrequently have I heard women, who were surrounded by all the advantages that outward wealth can give, say, with sad and timid self-reproach, "I ought to be happy. It is my own fault that I am not. But, I do not know how it is, I cannot get up an interest in anything." When I remind them that Richter said, "I have fireproof perennial enjoyments, called employments," few have faith in such a cure for the inanity of life. But the only certain way to attain habitual content and cheerfulness is by the active use of our faculties and feelings. Mrs. Somerville finds too much excitement and pleasure in her astronomical investigations, to need the poor stimulus of extravagant expenditure or gossipping about her neighbours. Yet the astronomer discharges all womanly duties with beautiful propriety. She takes nothing from her family. She merely gives to science those hours which many women in the same station waste in idleness and dissipation. What can be more charming than the example of Mrs. Huber, devoting herself to the study of natural history, to assist her blind husband in his observations? Or Mrs. Blake, making graceful drawings in her husband's studio, working off the impressions of his plates, and colouring them beautifully with her own hand?—*Mrs. Child.*

Maternal Influence.—The moral destinies of the world depend not so much upon institutions or upon education, as upon moral influence. The most powerful of all influences is the maternal. On the maternal character depend the mind, the prejudices, the virtues of nations; in other words, the regeneration of mankind.—*Aime Martin.*

The following facts in physiology are curious and interesting: A man is taller in the morning than at night to the extent of half an inch, owing to the relaxation of the cartilages. The human brain is the twenty-eighth

of the body, but in the horse but a four-hundreth. Ten days per annum is the average sickness of human life. About the age of 36, the lean man generally becomes fatter, and the fat man leaner. Richter enumerates 600 distinct species of disease in the eye.—The pulse of children is 180 in a minute; at puberty it is 80; and at 60, only 60. Dr. Lettom ascribes health and wealsh to water; happiness to small beer; and all diseases and crimes to the use of spirits. Elephants live for two hundred, three hundred, and even four hundred years. A healthy full grown elephant consumes thirty pounds of grain per day. Bats in India are called flying foxes, and measure six feet from tip to tip. Sheep in wild pastures practise self-defence by an array in which rams stand foremost, in concert with ewes and lambs, in the centre of a hollow square. Three Hudson's Bay dogs draw a sledge, loaded with 300 pounds, fifteen miles per day. One pair of pigs will increase in six years to 119,160, taking the increase at fourteen per annum. A pair of sheep, in the same time, would be but 64. A single female horsefly produces in one season, 20,080,320 eggs. The flea, grass-hopper and locust jump 200 times their own length, equal to a quarter of a mile for a man.—*Upper Canada Journal of Education.*

Dr. Hall's Journal of Health on the way to cure a Cold.—Hall's *Journal of Health* says, the moment a man is satisfied that he has taken a cold, let him do three things:—1st, eat nothing; 2nd, go to bed, cover up warm, in a warm room; 3rd, drink as much as he can, and as he wants, or as much hot herb tea as he can, in three cases out of four he will be almost well in thirty-six hours.

If he does nothing for his cold forty-eight hours after the cough commences, there is nothing that he can swallow that will by any possibility, do him any good, for the cold, with such a start, will run its course of about a fortnight, in spite of all that can be done, and what is swallowed in the mean time in the way of physic, is a hindrance, and not a good.

"Feed a cold and starve a fever," is a mischievous fallacy. A cold always brings a fever; the cold never beginning to get well until the fever subsides; but every mouthful swallowed is so much more fuel to feed the fever, but for the fact that as soon as a cold is fairly seated, nature in a kind of desperation, steps in and takes away the appetite, the commonest cold would be followed by very serious results, and in frail people would be almost fatal.

These things being so, the very fact of waiting forty-eight hours, gives time for the cold to fix itself in the system; for a cold does not usually cause a cough until a day or two has passed, and then waiting two days longer gives it the fullest chance to do its work before anything at all is done.

Scratches in Horses.—This troublesome cutaneous disorder, it is said by correspondent of the *N. E. Farmer*, may be cured by washing the part affected with warm castile soap-suds, wiping it dry, and then bathing it with a decoction of the leaves and twigs of an evergreen plant called "Lamb-Kill," common on cold wet land, and a valuable medicine in all diseases of the skin. A few thorough applications will effect a cure, and no dosing is necessary, though some attention to the diet, that it be cool and loosening, should be given in severe cases. Roots—potatoes particularly—might form a part of the feed.

The English Farmer.—Unfortunately, farmers have, like other people, a greater sense of the faults of others than of their own. They are not conscious of their own want of education and of their own awkwardness in many things; and yet they often entertain a most profound contempt for townspeople. It would be better if they piqued themselves upon their real merits and position rather than on their being able to do a few things which, living as they do in the country, they cannot avoid understanding. They really have a position and a character to maintain, and be proud of. The English farmer is a member of a most important class of society. Living in the country, and in the enjoyment of sun, and air, and fields, and trees, without the wearing routine of labour, which too often blinds the peasant to all these blessings, and makes him walk amongst them as if they were not; removed from all the excitement of city life; enjoying a distinctly marked position, free from the temptation of moving up into a higher grade, and so losing happiness and fortune, and all which makes life sweet and honourable; living in old manor-houses, occupied often from father to son for centuries, with their quiet country church, and honest invigorating recreations, the farmer has the means of being one of the

most sober-minded, sensible, independent, and happy men in the realm. If he is not this, it his own fault, or the fault of parents, or clergyman, or of some external circumstances. He might be an anchor and a principle of steadfastness to his country, and more useful, by far, in his quiet circle, than many bustling in larger spheres, and of greater pretensions.—*William Blake, by the Rev. W. E. Heygate.*

The Freedom of Wales.—The prophecy is still repeated, if not believed, that the Ancient Britons will not recover their freedom till they have brought back the bones of the old King from Italy. But this is a prophecy which is not likely to disturb the peace of the wearer of the crown of England, nor of the young heir thereto who bears the old title of Llewellyn—Prince of Wales. It would be as difficult to discover the bones of Cadwallader, as it would be to select a number of pure-blooded Britons sufficient to carry anything that remains of that monarch of blessed but sorrowful memory.—*The Book of the Princes of Wales. By Dr. Doran, F. S. A.*

Country Gaieties in the Eighteenth Century.—These were the great glories of the country; but lesser assemblies were established at many of those old market towns which have now dwindled into villages. It must have happened to some of our readers, in passing through such places, to have observed in the rambling, roomy inn, which, since the abolition of coaches, seems quietly mouldering away, the long and spacious apartment where these festivities were conducted. Hither a hundred years ago, to this obscure village, to this dingy room, now haunted by stale odours of tobacco, and abandoned to overseers and guardians, came all the youth and beauty and rank of ten miles around. We know of few things more calculated to touch a sanguine-minded man with momentary melancholy, than the sight of one of these old rooms. The local life, and mirth, and good fellowship seem to have so entirely departed; the utter dulness and desolation contrasts so forcibly with what the imagination conjures up; and it is so desperately hard to conjecture how the present landlord escapes bankruptcy; that we are glad to hurry away down the creaking old stair, past the bar where punch bowls once familiar to noble and knightly lips now shine uselessly, out into the open air and away upon our journey. Such places seem under a spell, and we don't feel happy till we leave them. Here, as we say, two or three times in the year the country gentleman brought his wife and daughters; and it is easy to see that the cavalier who rode a dozen miles next morning to inquire after his partner of the previous evening, was paying no mere compliment of gallantry, but that the lady was really lucky if she arrived at home without misadventure of any sort. The servants sure to be drunk; papa, perhaps, slightly fuddled; the roads deep, and narrow, and hilly; the night pitch-dark—here were surely plenty of excellent reasons why a gentleman should be anxious about the object of his affection till he had seen her safe and sound next morning.—*Universal Review.*

The Rockland (Me.) Gazette says that a subterranean retreat has been discovered in Megunticook Mountain, Camden.

A project is on foot in New York to supply water through meters, on the same principle that gas is now supplied.

No less than three daily papers are published at Denver City, Pike's Peak—a place of less than five thousand inhabitants.

The omnibus receipts of London for a week, ending October 10, were some $60,000, an average of $2,000,000 a year.

Editorial Notices, &c.

The Gardener's Monthly and Horticultural Advertiser. Edited by Thomas Meehan. Philadelphia, 23 North Bridge Street.

This is a Monthly Periodical devoted to the dissemination of practical and reliable information on the culture of Fruits, Flowers, Culinary Vegetables, and Ornamental Trees and Shrubs; on the management of Hot and Greenhouses, Vineries, Orchard and Forcing Houses, and on the Culture of Exotic Fruits and Flowers; and Landscape-Gardening, Rural Architecture, and Rustic Adornments. And to furnishing the latest discoveries, improvements, and inventions of a horticultural character in the kindred arts and sciences, such as Botany, Entomology, Chemistry, Mechanics, &c. And also, to afford an effective and economical Advertising medium to Nurserymen, Florists, &c.

We can most sincerely recommend this excel-

lent and cheap periodical, which is neatly printed and beautifully illustrated, and stitched in a wrapper, to every one possessing a garden, whether small or great. To many hundreds in the country such a monthly visitor must be a most welcome guest. The Editor is a practical Horticulturist of high standing, both in Britain and the United States, and is assisted by an able corps of American and foreign Correspondents. The terms of subscription are—

One copy for a year, payable in advance,				$1 00
Two copies	"	"	"	1 75
Five	"	"	"	4 00
Ten	"	"	"	7 00
Fifteen	"	"	"	10 00
Twenty	"	"	"	12 00

The third volume will commence on the 1st January, 1861. Parties can remit directly to the office in Philadelphia, or to Mr. James Fleming, Seedsman and Florist, Yonge Street, Toronto, who is agent for the work.

The Prairie Farmer: *Chicago, Illinois.*—Emery & Co.

We have the pleasure of acknowledging the receipt, from the publishers, of several numbers of this well executed Weekly, which is a valuable Repertory of Western agriculture and the mechanic arts. It has the largest circulation of any paper of its class in the West and North-West, and is a valuable medium to farmers, gardeners, nurserymen, and implement manufacturers. Terms, $2 per annum; 3 copies for $5; and 6 copies, one year and to one agent, $9.

To our enterprising farmers and implement makers in Canada, we would strongly recommend papers of this sort published in the United States; which would furnish them at regular intervals with all that is going on in the wide world relating to their respective pursuits. Such papers as the above, and the *Country Gentleman*, published by L. Tucker & Son at Albany, N. Y.; *Moore's Rural New Yorker*, Rochester, N. Y.; and the *Michigan Farmer*, Detroit; contain in every number, something which the farmer, gardener, and mechanic may turn to a practical account. What is more particularly wanting, is to induce people to read, think, and observe.

American Shorthorn Herd Book.—We are glad to learn that Mr. Lewis F. Allan is engaged in preparing a *fifth* volume of his well known Herd Book of Durham Cattle. It is gratifying to know that this valuable breed is so rapidly spreading on this continent as to require every few years an additional volume to record their pedigrees. Shorthorn breeders in Canada who desire to have their animals recorded in the American Herd Book, should communicate *at once* to Mr. Allan, Black Rock, N. Y., who is desirous of giving any information, or to make any corrections of errors that may have inadvertently crept into the former volumes. Pedigrees should be fully and precisely stated, and written in a plain hand, paying special attention to dates, and the correct spelling of proper names. The new volume is to be issued in the Spring, so that parties wishing to occupy space in it, should communicate their intentions *immediately*. The price to subscribers will be $5. Mr. Allan has copies of the 2nd, 3rd, and 4th volumes on hand, which he will send to order by Express for $5 each; or $5 50, by mail, postpaid, in advance.

Journal of the Bath and West of England Society. *London:* J. Ridgway. 1860.

We have been favored by the Secretary of this venerable Society, which was established in the year 1777, with a copy of its Transactions for the current year. This Society was established for the encouragement not only of agriculture but also of arts, manufactures, and commerce; thus resembling in its leading features, our own Provincial Association. The volume contains in addition to much local information and routine matter, a number of well written reports and articles having a general interest; from which we shall hereafter borrow for the information of our readers.

North British Review and Blackwood's Magazine for November. L. Scott & Co., 54 Gold street, New York.

We have received through Mr. Rowsell, Bookseller, of this city, the November number of the *North British* and *Blackwood*. The former, under the new management, continues to improve the already high literary standing of that excellent Quarterly, while *Blackwood* having

for many years attained to the ordinary life of the highest class of periodicals, evinces as much vigour and freshness as characterized its earlier days. The following articles of the *North British*, will well repay the most careful perusal:—Modern Thought, its progress and consummation; The Disturbances in Syria; Leigh Hunt; The Spanish Republics of South America; Province of Logic and recent British Logicians; Lord Macaulay's place in English literature; American Humour; Revivals; The Martyrdom of Galileo; The Sicilian Game. *Blackwood* for November contains in addition to the continuation of its leading Tales and Romances of the highest literary merit, excellent articles on Civil Service Appointments; The Administration of India; The Courtesies of War; Dando, the oyster eater; Iron-clad Ships of War, &c.

The London Quarterly in Politics is Conservative; The Edinburgh, Whig; The North British, Free Church; The Westminster, Liberal; and Blackwood's Magazine, Tory. It must not be inferred however, from this statement, that party political articles constitute the greater portion of these world-renowned periodicals. To general readers they are especially adapted, and their pages are mainly filled with often elaborate articles from the best writers, on history, science, biography, commerce and political economy, jurisprudence, geographical discovery, embracing in short all subjects within the wide range of literature and science. Our purely agricultural readers will occasionally find in them most valuable papers treating on subjects directly belonging to their own pursuits. The four Reviews are each published quarterly; while Blackwood's Magazine appears monthly. Messrs. Scott & Co. pay the British Publishers for advance sheets, the result being that the Reprints are produced and circulated over this extensive continent within two or three weeks at the most of their first appearance in Britain, and at *near one-fourth of the original price!* These periodicals may be regularly obtained as they are published, of any respectable bookseller in the Province, and the commencement of a new year is a peculiarly fitting time for subscribers to commence. In such cases as the taking of the whole by individuals would be felt inconvenient, we would recommend a few neighbors clubbing together and taking all five at the marvellously low price of $10 per annum.—What a rich fund of mental recreation and improvement would thus be opened to them! The following are the terms:—

	Per ann.
For any one of the four Reviews.....	$3 00
For any two of the four Reviews.....	5 00
For any three of the four Reviews.....	7 00
For all four of the Reviews.....	8 00
For Blackwood's Magazine	3 00
For Blackwood and one Review.....	5 00
For Blackwood and two Reviews.....	7 00
For Blackwood and three Reviews.....	9 00
For Blackwood and the four Reviews...	10 00

RURAL ANNUAL AND HORTICULTURAL DIRECTORY for 1861. Rochester, N. Y. Joseph Harris.

This is the sixth annual issue of this very useful publication, proceeding from the office of the well known *Genesee Farmer*, and containing articles of permanent interest to the farmer, gardener, mechanic, housewives, and rural readers generally. It contains 120 pages, illustrated by 80 well executed wood engravings, for the small sum of 25 cents per copy. We hail works of this kind among us as indicative of an improved, inquiring spirit among the great bulk of the agriculturists.

THE AGRICULTURIST FOR 1861.

Now is the time to forward subscriptions for the *Agriculturist* for 1861. We shall announce a list of money premiums in our next for the 15 or 20 largest lists of subscriptions forwarded prior to, say 15th February or thereabouts. The terms will be highly advantageous to Societies and agents.

The Agriculturist,

OR JOURNAL AND TRANSACTIONS OF THE B
OF AGRICULTURE OF UPPER CANADA,

IS published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Fve Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed at the "Guardian" Steam Press,
King St. East, Toronto.

THE

Canadian Agriculturist,

OR

JOURNAL AND TRANSACTIONS OF THE BOARD OF AGRICULTURE

OF UPPER CANADA.

VOL. XII. TORONTO, DECEMBER 16, 1860. No. 24.

The Close of the Year.

The year 1860 will be a memorable one in many respects, throughout the world. The disturbed political condition of Europe and the East, involving changes of the greatest moment, as affecting the rights and liberties of the people, and the progress of civilization, will afford abundant material for an important chapter in the world's history. Our neighbors on the other side of the lines promise to contribute something in this direction. Let us hope, however, that the present excitement will speedily subside, and that a wise and moderate course will be pursued by those who govern public opinion, that the confederative Republic may be maintained in its unity and integrity. We, in Canada, must necessarily be affected by any excitement or troubles that may agitate our neighbors, since our commercial intercourse is every day increasing; and already our farmers here have suffered a reduction in prices from this cause, particularly in wheat. Commerce is a most sensitive thing; and its extension and prosperity essentially depend upon free intercourse and internal quiet among all nations; or in other words, upon peace and security throughout the world.

The year 1860 will be memorable in British America, and the United States, for a bountiful harvest, and a consequent revival of agriculture and commerce. While thankful to a gracious Providence for this mark of Divine favor, it is most earnestly to be hoped, that our people will have the wisdom to use rightly, returning prosperity, by abstaining from rash speculations, and the indulgence of an unreasonable desire of hastening to be rich; a mistake as disastrous in the light of a sound political economy, as it is inconsistent with the spirit of christian morals. Industry, intelligently, perseveringly and honestly pursued, will, in this country, be sure in due course, to meet a fair return; a condition of things the most favorable "to the greatest happiness of the greatest number."

The year 1860 will be memorable in the agricultural annals of the British Islands, and a large portion of Northern Europe, for an almost unprecedented decree of cold and wet, during nearly the whole of the spring, summer and autumnal months; and as a consequence, a harvest deficient in quantity, and very much deteriorated in quality. It is universally admitted, that so injurious and extraordinary a season has not occurred in that part of the world since the year 1816; and if draining, the enlargement of enclosures, and general improved culture had not been extensively introduced since that date, the result must have proved still more disastrous. In some situations the wheat has been so much injured as to be unfit for human food, and is being fed to cattle. Grain that was much sprouted in the field, and afterwards kiln-dried, is by such process imperfectly converted into malt; and in that state some of the English farmers consider it to be better adapted as food for stock. It is evident from the latest accounts received from Europe, that a large demand will continue for our best quality of wheat on this side the Atlantic, and that current rates, at least, will be maintained.

On the cold, wet lands of the British Islands, France, &c, in consequence of protracted rains, the soil was not in a state to admit of a favorable seed bed, and we have seen many complaints of the late and disadvantageous manner in which the wheat has been sown; the exact opposite to our experience in this western hemisphere.

We consider then that our farmers' prospects are now much brighter than they have been for several years past, and that prices are likely to continue remunerative. We require to pay better attention to the cleaning and cropping of the soil, the selection of seed, and the application of manures; matters of the utmost importance in order to reap abundant crops of good quality. And with a view of expediting the accomplishment of these objects, we would strongly recommend our readers to improve the leisure which winter affords for storing their minds with useful and appropriate information by judicious reading and careful directions. Farmers cannot now complain of a want of suitable books, either as periodicals or standard works. The chief thing is to get farmers, young men especially, *to form the habit of reading, thinking, and correct observation.* Such acquisitions both dignify and improve their pursuit. The comparative leisure of winter affords opportunity also for considering and planning next year's operations; repairing implements, hauling posts and rails, so as to get fences into an efficient state for protection, before the hurried duties of the spring commence. Something can always be done by anticipation, towards rendering the operations of that extremely busy season less complicated, and more easily practicable.

Portable Manures and their applications.

The most signal improvement, perhaps, in modern British agriculture is the manufacture and employment of less bulky manures, which readily admit of being transported to the most distant parts of the farm, and the sides and tops even of hills and elevated ridges, places to which farm yard dung and other heavy substances used for fertilizing the soil, would not reach. Hence we now see splendid fields of turnips, folded by sheep, followed by excellent crops of barley or oats, with clover and grass, where from time immemorial only heath, broom, and a few coarse alpine plants, cropped by the mountain or black-faced sheep, were only to be seen. Portable manures, or hand tillages as they are sometimes termed, such as guano, rape and bone dust, super-phosphate of lime, poudrette, &c., are also extensively employed in the ordinary cropping of the lower portions of farms; and their introduction into Canada of late years, although as yet but to a small extent, is constituting a new and improved epoch in our colonial agriculture.

Portable manures are applied either in a dry or liquid form, broadcast or in the drill, prior to sowing, or during the time the side is being deposited. In some cases a portion is applied after the plants have advanced to a certain stage, a portion being deposited at the time of sowing the seed.

The application of portable maures, guanos, or super-phosphates, in a liquid state, renders the germination of the seed, and the subsequent brairding, a matter of certainty, and is consequently of peculiar advantage in sowing turnips and other small seeds in such a climate as Canada, when drought is so frequently a cause of failure during the spring and early summer months. In a dry climate the applying of manure in a liquid form has been known, in some instances, to double the weight of root crops. Machines for the equable distribution of liquid manure have been invented, and found most beneficial under certain circumstances in practice. The quantity of water to the amount o manure per acre is regulated according to the condition of the land, the dryness of the atmosphere, and the supply of water within a convenient distance. The water-drill is used for mangel as well as for turnip—the depositing of the seed following immediately the distribution of the liquid-manure, which is conveyed from the body of the machine by spouts. Super-phosphates are usually preferred for liquid-manuring, but a mixture of guano with super-phosphate is occasionally employed.

In applying portable manures, the common practice is to deposit in the drills, either by hand or by machine. By this method the roots of the germinating seed rapidly come into contact with the manure. This condition, when moisture is present, ensures a rapid growth during the first stages; but in practice it has been observed that the plants, when they reached the period of bulbing, do not grow so vigorously, either in developing the leaves or bulbs. When

the manure is deposited broadcast, and prior to the forming of the drills, it becomes more mixed with the soil, and is more evenly scattered through the space in which the rootlets of the plant will ultimately spread. Hence the plants grow more uniformly, and are less subject to diseases, such as mildew, &c.

Another novel method of applying portable manures is partially followed. By depositing a part of the manure at the period of sowing, and applying another portion when the plants have attained a certain growth, very good results have been obtained. The second manurial application is made when the crop is being hoed for the last time, the manure applied on the surface being stirred into the soil by the use of the paring-plough, drill-grubber, and hand-hoe. In the cultivation of all root-crops, this supplementary manuring produces very marked results, particularly when moisture occurs shortly after the manure has been applied. The best descriptions of manures for the supplementary dressings are those containing a mixture of ammonia and phosphates; Peruvian guano, possessing these, can be profitably used for this purpose. When it is intended to adopt this practice, the manure applied at the period of sowing should be a phosphatic guano or super-phosphate—applied at the rate of three or four cwts. per acre—the supplementary application being a similar quantity. Guano to be applied when the plants are well advanced, should be treated with sulphuric acid. The phosphates present will be more readily appropiated by the plants, and the results of the application will consequently be greater. Indeed as a rule, almost all guanos can be profitably treated with acid, whether applied prior to sowing the seed or used for surface manuring. In this country more particularly, the application of portable manures will be found most advantageous in raising root crops, especially turnips and mangels, and success will greatly depend in bringing the soil into a suitable condition by deep cultivation, and frequent stirrings during the growth of the crop.

How to ascertain the Quality of Guano.

As much adulteration of guano has been made, before it reaches the farmer's hands, the following simple rules will be found useful, and can be readily applied. For a precise knowledge of the composition and commercial value of guanos, a thorough chemical analysis is required, and which in many instances has been the means of securing the farmer's interests against the attacks of wilful fraud.

1st. *Colour of Guano.* The colour of coffee with milk is ordinarily that of good guano. If the colour is too grey, it is probably because the article is too earthy. When it is browner, there will in general be found a large quantity of water in it.

2nd. *Taste.* The stronger the flavour of guanos, as salt, piquant, and caustic, the richer they are in ammoniacal salts.

3rd. *Smell.* The smell of guano can scarcely serve as a means of comparison, for it varies with the degree of dryness, or moisture. However, a smell of ammonia is a good sign.

4th. *Consistence.* Good guano is ordinarily oily to the touch. It is in small grains, but sometimes in larger pieces. If the guano be rich in urates, the pieces, when broken, appear shining and crystalized. When the guano is of inferior quality, it is full of earth; it is bad if it contain many stones and gravel.

5th. *Flame.* A small piece of good guano put on a thin blade of platina, and held over the flame of a spirit lamp, will blaze up, burn with a long flame, and leave a residue of charcoal ashes. Guanos poor in organic matter give out less charcoal.

6th. *Testing with Quicklime.* A piece of guano rubbed with a piece of quicklime emits a strong smell of ammonia. Ammonia and the phosphates constitute the chief manurial power of all guanos.

Thistles.

A correspondent in our last number gives an account of his mode of destroying those most troublesome pests of the farm. When these weeds get a strong hold of land, as is the case with thousands of acres in this Province, their complete eradication is a difficult and often protracted operation. In pasture land, thistles may in a few years be entirely got rid of by cutting them off with a spud a little below the surface. And summer fallowing arable land, and pulling them up or cutting them off as they appear, will

eventually destroy the nuisance. It should be remembered that most kinds of thistles are endowed with an amazing quantity of seed, which the farmer often sows with his grain, so that the evil is self-propagating. The ordinary corn, or as it is here termed Canada thistle, (*Carduus arvensis*) often contains from five to six thousands seeds in a single plant, besides rapidly extending itself by creeping roots. The prevalence of thistles, and weeds generally, is an infallible mark of slovenly farming. Good cultivation and the sowing of clean seed, will in the long run prevent these pests from producing a serious annoyance. The only perfect cure, however, is to pull up or cut off the plant below the surface, *before it runs to seed.* In this way, by constant attention, thistles and all other weeds may be completely arrested, and the land kept *perfectly clean*, which in the end is by far the *cheapest* way of encountering the evil.

The following observations of Professor Buckman, in a recent number of the *Mark Lane Express*, will be found both interesting and useful:—

We have now to speak of the perennial forms of thistle: and here the *Carduus arvensis*, from its specific name, might appear to be an agrarian rather than a pasture weed; but, in truth, it is far too abundant in both, and wherever found it is difficult to eradicate on account of the long succulent creeping *Rhizomata*, by which so large an underground growth is maintained, being ever ready to shoot up on the advent of spring, and suddenly to show forth the patch of thistles where formerly only a few had been observed. From the well-known fact of the increase of this plant by the means here described, the farmer concludes that it is only propagated in this way, and that the seed of this plant will not grow. And Curtis entertained the same opinion, for after describing the growth of the part which botanists call the *rhizome*, he says as follows,—"This, therefore, is the manner of their reproduction: the fibres left shoot out larger roots, which also rise higher in the soil and spread; these form buds, and hence come our annual crop of thistles."

However, as we had reason to suspect some fallacy in this, we collected some seeds and planted ten in a pot, and we found that *every one germinated.* We have them still growing; and when the experiments are complete, shall hope to make out some new facts in the natural history of thistles. At present, however, we can only record the opinion that the *Carduus arvensis* is annually produced from seeds to an enormous extent; but so small is its first year's growth above the ground as hardly to attract notice, while the underground growth is preparing small buds, which make a complete colony the second year. However, it happens fortunately that much of the seed of this plant is eaten by a weevil, and that which arrives at perfection is a favourite of small birds, and particularly of the finches.

To destroy thistles of this kind in a meadow, we should take care never to let the leaves, which are the lungs of the plant, have time for their growth; as soon as we see them we should trample them under foot, or hammer the young buds to bits with something like the old "clod beetle;" and when they greatly abound a repeated rolling with a Crosskill seems advisable, the object being to *bruise* them, as they do not recover injuries of this kind so soon as those done by a sharp implement, clean wounds in plants, as every gardener knows, being much more easy to heal than contused ones; and as the object is to prevent the growth of the leaf, which is the active agent in building up other structures of the plant, not even omitting those below ground. If this be continued with either this kind of thistles or nettles, the rhizome will gradually die out. Curtis condemns the early attack upon thistles; he says,—"Clearing the wheat of thistles by the hook or spud is usually practised during the months of April and May; but, to show of how little avail it is to cut down thistles early in the year, the following rustic doggrel may be subjoined:—

"'If thistles be cut in April,
They appear in a little while;
If in May,
They peep out the next day:
If cut in June,
They re-appear very soon;
If in July,
They'll hardly die;
But if cut in August,
Die they must!'"

From these lines it would appear to be generally known that thistles (and we have seen the same rhymes applied to the case of nettles) grow again after injury, more or less readily according to the month in which it is done; so that in May, when the destinies for the year of so many plants are determined, the new growth is rapid. Well, be it so; but we would remark that cutting them in April or May does the greatest amount of permanent injury on this very account, whereas although it is equally true, that if this be done in August, you see no more of them for that year; yet no real injury is done to the future crop of thistles or nettles, inasmuch as by that time the plant had used all its growing powers to the enlargement of the underground stems—the root-stocks, which are thus strengthened for the following year's growth; for it should be remembered that in August its own natural period of growth is nearly over. On this point we may quote the remarks of a writer in the *Agricultural Gazette* for June, 1859:—

"In August the nettle has performed all its functions for the year, even to the production of seed, so that, although upon being cut down it will disappear for that year, the pest is not at all injured in productiveness for the next season. The fallacy of recommending August cutting of these weeds must be apparent to everybody. The madman in the poem is made to say to the soldier as to killing his enemies—

'Kill a fool's head of your own;
They'll die of themselves if you let them alone.'

"And this is quite true of the enemies of the farmer at this season. The first cold night acts quite as readily in destroying the above-ground growth as the most careful cutting. Hence the injury inflicted by August cutting is more apparent than real."

In dealing, therefore, with perennial plants of this kind, as found in pastures, the only plan is to bruise them when they first appear, and again whenever they re-appear, and their permanent destruction will be ensured at a quicker rate than is generally supposed.

Botanical Society of Canada.

We are glad to see that an influential meeting, called by public advertisement, has recently been held in the city of Kingston, to consider the propriety of establishing a Botanical Society. The Rev. Dr. Leitch, Principal of Queen's College, was called to the chair, and opened the proceedings with a perspicuous and eloquent address. The learned Principal was followed by Professors Williamson, Weir, Mowatt, Litchfield, Yates, Stewart, Lawson, etc., who pointed out the advantages which such a Society, in connection with a Botanical Garden, would confer not only in the vicinity of Kingston, but on the British Provinces generally. The interests of Botanical science would thus be promoted in an extensive region of country, which has hitherto been too much neglected, but which promises to all zealous cultivators an abundant harvest. The resolution to establish the Society was carried unanimously, and a code of Laws for its government agreed to, and a considerable number of gentlemen entered their names as members. The Society consists of four classes, viz: 1. Honorary Members; 2. Fellows; 3. Annual Subscribers; 4. Correspondin: Members. The subscription of Annual Members is $2. Members generally will enjoy certain privileges, such as an exchange of plants; information relative to their habits, mode of culture and economic uses, &c.

As the proceedings of this Society, if properly sustained and carried out, cannot fail to influence favorably not only the Horticulture but also to a considerable extent the Agriculture of Canada, we subjoin without abridgment the able and interesting address of Professor Lawson, who is ready to furnish all particulars of the organization and objects of the Society, and the manner of carrying the letter into effect.

PROFESSOR LAWSON'S ADDRESS.

Dr. Lawson pointed out the peculiar sphere in which the botanist is called to labor, the range of his studies, and the means required for their pursuit. It is of great importance that at the outset the real object of our proposed Society should be understood. The establishment of a Botanical Garden and other appliances must be regarded as secondary to the great object of the Society, the prosecution of scientific botany. Botany is at a low ebb in Canada, at a lower ebb than in most civilized or half civilized countries on the face of the earth. At the close of the eighteenth century only five dissertations on botanical subjects had been published by the whole medical graduates of the great continent of America. Since then the indefatigable labors of such men as Michaux, Torrey, Harvey, Curtis, Boott, Engelmann, Tuckermann, Sullivant, Lesquereux, and especially of one whose name and fame rise above all the rest, Asa Gray, have brought our knowledge of the botany of the United States on a level with that of the best botanized countries of Europe. The Flora of Canada has also been elaborated since then by one who still presides over the destinies of botanical science, not in England alone, for his authority is recognized wherever the science is pursued. But during a period of nearly thirty years very little has been added to our published knowledge of Canadian botany. Information respecting our indigenous plants must still be sought for in the work of Sir William Hooker, issued from the Colonial office in England in 1833. That work, founded as it necessarily was, on dried specimens carried home by passing travellers, afforded to the botanical world an admirable example of how much could be made out of slender material when in good hands. Unimpeachable as a work of science, unsurpassed in the whole range of botanical literature in the accuracy and beauty of its illustrations, the *Flora Boreali-Americana* afforded the means of developing still more fully a knowledge of the Canadian Flora. The North American Flora of Torrey and Gray, and the Manual of the Botany of the Northern States, offered additional temptations to the pursuit; but advances have not been made commensurate with the advantages that were offered: we have

still, therefore, the singular anomaly of a country distinguished by its liberal patronage to science, dependent for its information respecting its native plants on the descriptions of specimens culled by early travellers. What was thirty years ago, and is now, of the highest value, can only in a partial manner meet the wants of the country in these days, when new manufactures and new forms of industry, seeking new products to work upon, are daily springing up around us. We desire to place the science of Botany on a more satisfactory footing in Canada than that which it now holds; we desire to increase the existing stock of knowledge; we desire to diffuse a taste for the study, so as to add to the number of laborers now in the field; and we desire to place on record new observations and discoveries, as they arise. The Botanical Society is designed as a means of carrying out purposes such as these.

Extensive circulation was given some time ago by Canadian newspapers to a report that Sir Wm. Hooker was on his way to Canada with a staff of assistants, to explore the botany of the country. I have the best authority for stating that that report was without foundation. It probably originated in certain proposals that were made to the Colonial office regarding the publication of a series of popular Manuals of Colonial Botany; but no expedition was ever contemplated by Sir Wm. Hooker, or any one else, at the instance of the Government. On the contrary, recent communications from the botanical advisers of the Home Government indicate that Canada must follow the salutary example of other old established British Colonies, find conduct for herself investigations into the nature and distribution of her indigenous productions.

We already possess in Canada several important scientific societies in active operation. While the Canadian Institute is of a comprehensive character, embracing all branches of science, literature and philosophy, the special department of geology is amply cultivated by the Natural History Society of Montreal, which has also, however, made valuable contributions to zoology and botany. In addition to such institutions as these, we have, of still more special character, the Government Geological Survey, which has been instrumental in carrying out investigations of the greatest importance to the country, whether their results be viewed as intellectual achievements or as contributions to material industry.

It is proposed that our Society shall have for its object the advancement of Botanical Science in all its departments—Structural, Physiological, Systematic and Geographical; and the application of Botany to the useful and ornamental arts of life. The means by which this object may be accomplished are various, and will come before us for discussion from time to time. In the meantime, it is proposed that there shall be monthly evening meetings in Kingston during the winter for the reading of papers, receiving botanical intelligence, examining specimens, and discussing matters of scientific interest in relation to the science; also that there shall be field meetings during the summer in distant localities in Canada, as well as in the other British Provinces of North America, and occasionally also in the adjoining States, whereby our members may have an opportunity of investigating the botany of districts that have been imperfectly examined. By the above, and similar means, much important information may be brought together. Such facts and results, new to science, as are laid before the Society, from time to time, will afford materials for the publication of "Transactions," whereby our stores may be rendered available to the public in Canada, and to botanists in other parts of the world. In addition to such means, the Society may greatly promote its objects by correspondence with botanists in other countries, and especially with those who are located beside the extensive public herbaria, botanical libraries, and gardens, in various parts of the United States and Europe. By correspondence with such persons, many doubtful points in nomenclature may be set at rest, while the existence of information relating to Canadian Botany may be ascertained that might otherwise remain unknown, Botanists distinguished in certain branches of the science may be called upon to furnish reports on their special subjects, for which materials may be brought together by the members. Such aid will be of the greatest value to the Society, and I have therefore gratification in informing you that communications have already been received from some of the most active botanists in the United States, England, Scotland and Prussia, promising cordial co-operation. So soon as preliminary operations enable us to proceed to the discussion of scientific business, you will also have an opportunity of ascertaining that we already have observers throughout the length and breadth of Canada, as well as in the other North American Provinces, from the Red River in the far west to the Island of Prince Edward in the East. In common with the botanists of other countries, we must necessarily take cognizance of those discoveries in structural and physiological botany which are daily challenging a careful examination. But our position in a comparatively new country points out to us a special path of research which it will be our duty to follow—that which has for its object the investigation of the species botany of Canada, the geographical and local distribution of the plants. The indigenous plants, whose products are now used or are capable of being applied to the useful arts, will deserve a large share of attention, and no doubt regard will also be had to those that are suited to our climate, but have not yet been introduced. Strewed around our path in the woods and on the shores of our lakes are many plants capable of yielding food and physic, dyeing and tanning

materials, oils, fibres for spinning and paper-making, &c. Even in the midst of the city of Kingston, growing on vacant lots, and in court yards, there are drug-plants enough to stock a Liverpool warehouse. Such will no doubt be brought into use when better known, and thus an increase will be effected in the production of the country.

Two things are necessary for the successful prosecution of such researches—a good botanical library and a good herbarium. During the past year botanical works of great value have been added to the library of Queen's College, and these, together with others in private hands, which will be accessible to members of the Society, embrace almost all the works that have a direct bearing on the Canadian flora. There is thus laid in Kingston the basis of a botanical library, which it will be the object of this Society to foster, by additions obtained by purchase or exchange with other scientific bodies, provided a suitable arrangement is made with the University authorities. With respect to a herbarium, or collection of dried plants, this is justly regarded by every Botanical Society as absolutely necessary to enable members to refer specimens correctly to their species. It will therefore be satisfactory to know that arrangements are now in progress, whereby the herbarium, presently attached to the Natural History Chair of Queen's Collge, will be re-arranged in a convenient room, so as to become available for this purpose. The Herbarium embraces a fair representation of the Floras of Europe, Asia, Africa, and Australia, and is especially rich in American species; it has been named with great care, under favorable circumstances, many of the specimens, in difficult and obscure families, having passed through the hands of such botanists as Balfour, Greville, Gray, Babington, Heldreich, Hooker, Lindlay, Bruch, and Schimper, Syme, Wilson, Berkeley, Moore, Mitten, Tuckermann, Carrington, Watson, Lowe, Lindsay, Harvey, Leighton, and other authorities in nomenclature. In addition to such means as the above, there is now an abundant supply of excellent Microscopes in Queen's College, with all needful apparatus for the prosecution of minute researches and microscopical analysis.

It will be observed that we propose to occupy a new field of research, to cut a new sod that has hitherto been walked over by Canadians in comparative neglect. And, as before cultivation can take place, a clearance must be made, so I have endeavored to answer some of the objections that might be started to the formation of such a Society, and to point out the nature of the ground which it proposes to occupy. While leaving to other Societies the discussion of the more general questions of science, and to special Societies their peculiar topics, we propose to employ the Botanical Society as an instrument for the collection of facts and the working out of details, which are of immediate interest to the botanist alone, but of the greatest importance in leading to correct results in general science. Scientific Societies on a broader basis have too often degenerated into popular institutions, calculated rather for the amusement of the many, than for the encouragement and aid of the few who are engaged in the prosecution of original discovery. We shall be guarded against such a result, in a great measure, by the special object of our Institution, but it will be needful, also, while we attempt to spread a taste for Botany, and to diffuse correct information as to its objects, its discoveries, and its useful applications, that we should seek rather to bring our members and the public into scientific modes of thought and expression, than to allow our Society to yield up its scientific character to suit the popular taste. There is much reason to believe that the want of an organization of this kind, whose duty it is to collect and record facts and discoveries, has been the means of losing to science materials of great value. There have been casual residents in Canada, at different times, who have made collections of greater or less extent, and who have, in some cases, carried out special investigations in Botany, without leaving any printed record of their labors. Some of these may still be rescued from oblivion; but there are also other observations and discoveries made by present residents in the country which, we may confidently hope, will be made available to the Society's purposes. Professor Williamson's long residence in Kingston has enabled him to make an extensive series of observations on our local flora, which are of the greatest interest, and other Professors of Queen's College have followed his example. Some of our graduates and students have also, of late years, made collections of greater or less extent, during their vacation residence in different parts of the country. The neighborhood of Kingston and the adjoining islands have been investigated by Mr. Andrew T. Drummond, B.A., who obtained a prize for his valuable collection, in the Natural History Class, two years ago. Dr. Dupuis has collected the plants of the rear of Frontenac and Earnestown, while Newboro', Perth, the Ottawa country have each their collectors. Dr. Giles has, I believe, been devoting special attention to lichens. Mr. Schultz has had an opportunity, during the past season, of botanizing the Red River Settlement, and I have received notices of collections, formed by our students in other distant localities, that may prove of great interest. Circumstances such as these give us reason to hope that our efforts to raise up a Botanical Society will be attended with success, and that its labors will be beneficial in leading to a more extended knowledge of the indigenous productions of Canada.

The objects sought by the establishment of a Botanical Society in this country are of great importance, both in a scientific and economical point of view. The field is broad, and the soil is rich. The extent to which we can cultivate it will depend entirely upon the number of la-

borers, and the zeal and industry which they display. Let us, therefore, be not disappointed with our first results. Let us lay a foundation, and persevere in the work, and workers will gather around us as they have done before in the Botanical Societies of other countries. To organizations of this kind, more than to any other means, are we indebted for the advanced state of Botanical science at this day; and in a country such as this, it is especially needful to have a wide-spread organization in order to elicit satisfactory results. In an attempt to organize a Society such as this, we may confidently appeal to many classes of the community. The theologian and moralist see in the vegetable kingdom a display of the power and wisdom and goodness of our Creator, and beautiful types of spiritual teaching; the medical man recognizes in it the source of his most potent drugs; the sanitary reformer knows that the simpler forms of vegetation are often the cause, and more frequently the index, of widely spread diseases; the lawyer finds in the microscopical structure of vegetable products a ready means of detecting frauds, adulterations and poisonings; the commercial man recognizes the value of a science having such bearings, and directly devoted to the extension of the sphere of industry; the spinner and paper-maker must here obtain their knowledge of the mechanical condition of vegetable fibres; the farmer, the gardener, the orchardist, the vine-grower, the brewer, the dyer, the tanner, and the lumberman, must all apply to botany for an explanation of matters that daily come before them in their various avocations. As an utilitarian institution then, our Society is worthy, and will no doubt receive, warm support; but it is to be hoped that many zealous laborers will enter the field from higher motives—a desire to promote the cause of science.

On the use of Salt and Bones, Sulphuric Acid, &c.

At your request, I beg to furnish answers to the following questions put by "A Constant Reader:—"

"1st. Will common salt dissolve half-inch bones in a proper manner for the use of the turnip crop; and, if so, in what quantity (for a ton of bones) should it be applied?

"2nd. Is sulphuric acid of itself of any use as a manure?

"3rd. Which is the cheaper to use for the turnip-crop—dissolved bones or guano?"

1st. It is now a well-known fact that for the turnip-crop phosphoric acid is a most valuable manure; and, in order to obtain good results from its application, it must be used in a soluble state. There are several methods for rendering the phosphoric acid in bones soluble; and, unquestionably, that is the best which will give the greatest crop at the least cost. The method proposed by Professor Liebig, of dissolving bones or other phosphates with sulphuric acid, is a most excellent plan, and one which is generally adopted, care only being necessary to supply sufficient sulphuric acid to render soluble a sufficient amount of the phosphoric acid of the bones. Another very simple means of decomposing bones is by mixing them with wet ashes, when in a short time an immense quantity of heat will be generated, arising from the decomposition of the animal matter of the bones; and the bones, thus finely divided, are found to be much better, and in a more available state for the roots of the turnip. Even if crushed bones be moistened, and mixed together in a heap, similar effects will be produced: slow, spontaneous combustion commences, and heat is produced, by the same law that causes hay-stacks to fire when badly harvested, and also manure-heaps, when moisture is present in a favourable quantity.

But by this method of preparing bones there will be a considerable loss of ammonia, unless there be some good absorbent spread over the surface of the heap. Many successful experiments have been tried by Mr. Pusey, by decomposing bones with peat ashes and sand. This gentleman mixed one cart-load of crushed bones wetted, with two of ashes; and in another trial, one cart-load of crushed bones, wetted, with two of sand. In a few days the bones were equally decomposed; and in these applications to the crop he found that the same value of bones, decomposed in this manner with sand, gave better results in the produce of the succeeding crop than he obtained by the application of an equal value per acre of superphosphate of lime. It is my opinion that spontaneous decomposition of this kind will take place by the admixture of common salt with moistened half-inch bones, though it is probable that not much will be gained by the use of the salt instead of ashes. This had better be decided by experiment. I believe that common salt would have little or no more power of decomposing the bones than the peat-ashes or sand; but there might be a beneficial effect from the application of salt to the soil, in connection with decomposed bones, inasmuch as it would supply the chloride of sodium required by the turnip. If common salt be used, I should recommend a less quantity of salt, in proportion to the bones, than of sand or ashes, as used in the above-mentioned experiments.

2nd. Sulphuric acid is undoubtedly a manure for plants *per se*, as it can always be detected in their ash. For the potato crop it is very beneficial, and also for the clovers and turnips. This acid exists in the latter to a very considerable amount. Now comes the mode of application. If the question means, Is it good to apply oil of vitriol to the soil as a manure in its uncombined state? I would say it would certainly serve then as a manure on such land that required it; but its first action would be to decompose any carbonate of lime in the soil, and form gypsum;

and this gypsum might have been applied in the first case cheaper and more easily than the oil of vitriol, for that mineral acid is very destructive of anything it comes in contact with, and would be very inconvenient to put upon the land. Sulphuric acid may be applied in various ways to advantage, in the form of sulphate of lime, sulphate of soda, sulphate of magnesia, and sulphate of ammonia.

3rd. The turnip crop is of immense value to the feeder of cattle, and it is necessary that every means should be made use of for producing it at as small a cost as possible. When the land is properly prepared, by a certain number of ploughings, &c., then a quantity of food is required to be stored in the soil to support the plant during its growth. The analysis of the turnip shows that phosphates and sulphates are very necessary as inorganic manures, whilst as an organic manure ammonia stands the highest. To say which is the cheapest to apply to the soil, phosphates in the shape of bones in a soluble state, or phosphates and ammonia as in guano, would be very difficult as a rule; for circumstances would alter the case: for, should the soil contain naturally (as many do) a considerable quantity of phosphates, then guano or ammonia would be the best to use; but, as a rule, for turnips it is better to apply in the manure both phosphates and ammonia, for then you give the organic and inorganic materials. From many series of experiments that have been made, it has been proved that both the organic and inorganic manures take their part in the production of vegetation. The use of both has proved practically to be the most efficient, and I should recommend as a manure from one to two cwt. of superphosphate of lime, or bones in a soluble state, mixed with ashes or some other material containing potash, to be drilled with the seed; and one or two cwt. per acre of guano, to be sown broadcast on the land, and harrowed in, about one month previous to sowing the seed. This, I consider would be the *best* manure for the turnip crop, and therefore the *cheapest*. The superphosphate would force on the young plant, whilst the guano would be disseminated throughout the soil for its after-growth. E. Lane. —*Mark Lane Express.*

Distress of the Settlers in Minnesota.

The following memorial to the U. S. Congress gives a melancholy picture of the position in which settlers in parts of the great West are placed. It is deserving of the careful attention of those farmers and others in Canada, who fancy that all they need do to secure a fortune is to desert the fertile lands and sure prospects of success open to them in this country, and migrate to the Western and North-western States and Territories of the Union.

SALE OF PUBLIC LANDS.—MEMORIAL.

TO THE PRESIDENT AND PEOPLE OF THE UNITED STATES.

Fellow Citizens:—The proclamation of the President of the United States recently issued declaring an extensive land sale in Minnesota and other States and Territories, to take place in October and November of the present year, has induced us to present a few facts for your consideration.

Most of the people who sign this statement, together with a majority of those living in this part of the West, are settled on lands belonging to the United States. We came to this part of the country with the hope that by a few years of labor, economy, prudence, and deprivation, we could pay for enough land to make homes for ourselves and our families. In this we have been disappointed. Many of us have raised enough produce and stock, which, if they could have been sold; or could now be sold at fair prices, would enable us to pay for our lands; but we have no market at home, and no railroads to carry it abroad. If we wish to exchange our produce for necessary articles, we must carry it from five to fifteen miles to find a store, and when there, we must give ten bushels of wheat to buy a pair of boots, and four bushels of corn to buy a yard of coarse woollen cloth.

Our salt, iron, glass, and nearly all our manufactured articles come from distant places, and while we have to pay double price for these, we can get but one quarter of the ordinary value of our grain. We came to this part of the country generally without means, and you, gentlemen, upon a moment's reflection, can appreciate our condition, when we took possession of those lands. We have no houses, no roads, no bridges, no fences, no barns, no seed, no market. Suppose after getting our families into half tenable houses, we raise more than enough the first year to supply our bare necessities, our mill is twenty miles distant, and our nearest store ten. On account of the scarcity of teams, we often have to carry our grain and other produce a part or all the way to mill and market on our backs, and to bring back our flour, salt, mails, and clothes in the same way. Tea, sugar, molasses, spices, and the like, we go without for years, or use them only as a medicine, or on special occasions.

We wear corn-sack pantaloons, and old mocassins and boot legs for foot coverings. We use leather hinges, and wooden latches, and glass enough barely to do our in-door work.

We are not presenting to you the cause of the indolent and the profligate—we have worked late, and we have worked early, and have used as much frugality and patience as any class of people in the Union. Still, we are not able to pay for our lands. There are twenty thousand people here in Minnesota settled on Government lands, who cannot pay for their claims, without disposing of all else they possess, and there are

ten thousand of them who cannot pay for their claims on any condition. We have built houses, we have cleared land, and cultivated the soil; we have built fences and dug wells, and made bridges and roads, and in some cases schoolhouses, but after the 15th day of this present month (October,) any body who has two hundred dollars or a land warrant, can buy our improvements and our claims of the Government, and turn us out of doors.

We do not ask to have property taken from our fellow citizens and given to us for nothing, but we submit to you brethren, whether we have not done something of permanent benefit to the country, and something to entitle us to the land we occupy? There are, doubtles, some seekers after land, who would not disturb the settlers, nor buy the land from under them, but the power to do is theirs, and we fear the worst. We are confident the facts of the case will cause you to decide that we are about to suffer injustice, and so decide, as we are confident you will, we ask you to do what lies in your power to relieve us from this state of uncertainty, and the actual forfeiture of our claims.

Moses Goodrich.	P. Putnam.
D. B. Tompkins.	B. Wakefield.
George Coombs.	E. Hibbard.
Charles Bryant.	W. Walker.
George W. Fee.	James Hibbard.
Hiram Locks.	D. McKenzie.
Paul Kennedy.	Wm. A. Stone.

Sianca, Minnesota, Oct. 1860.

The United States cannot feed the whole World.

The present arid condition of Kansas, so much worse than is ever known further East, is suggestive of certain facts concerning the Western country, as a producer of cereals, which are not so widely known as they should be. Most of our people are as ignorant of the Far West as the English are of the United States generally. The idea seems to prevail that the whole region West of the Mississippi—except that occupied by a few insignificant plains—is a rich prairie land, which will all be ere long occupied by such thrifty farmers as now people Illinois. This is a great mistake. As to wheat, for instance, those who know and ought to know most about it, tell us that Ohio is the western boundary of the rich wheat-growing country. What, then, becomes of the dreams of those who would have it that we will soon be able to supply the whole world with flour? Few men know more about wheat than Mr. Klippart, of Columbus, Ohio, a gentleman of European reputation as a scientific agriculturist. He has made the study of this subject the great business of his life; and yet he, in his recent book on the "Wheat Plant," which was mostly published at first in the report of the United States Patent Office, makes the above statement. Although American pride has prevented the due circulation of this statemet, he substantiates it very thoroughly. He says that the black prairie soil is not the thing for wheat; that it needs a large admixture of clay, such as is found in Ohio and the States east of it; that showy crops can be raised for a while on the prairies, but something generally goes wrong with them. Smut or insects, or some other of the innumerable evils wheat is heir to, destroys so large a portion of the Illinois crop, that the farmers of that State consider it very unsafe, and in many cases entirely abandon it for corn, which is much hardier. Some will say, we can then feed the world with corn. This is a more reasonable supposition; but when we consider the present condition of Kansas, and the structure of all that region which feeds the tributaries of the Missouri river, we see but a poor chance for such an enormous increase of our annual corn crop as is anticipated. The great enemy of all those millions of acres at present called United States Territories, is drought; the condition of Kansas is only a foretaste of what you can find beyond; and consider the state of things even there. In which one of our Eastern States was such a condition of things ever known? After long preserving as strict a silence as possible, Kansas correspondence of eastern papers, for fear things should be thought to be in a worse condition there than they really are, come out and acknowledge the following facts: Long caravans of retreating emigrants are repassing the borders. The loss of the grain crop cuts all means of keeping the hogs now in the Territory. Four weeks ago hogs were almost given away in many places. No one would buy, as there was nothing for them to eat. Thousands could have been bought for half a cent a pound. Soon parties came in from Illinois to buy them up at a fair price—one to three cents a pound, and they are buying nearly all there are there. It has taken five years to accumulate this stock. As to cattle, they are being driven South for wintering; in many cases one-half being offered for the winter feed of the other. Seed wheat is being brought from Chicago; but it is of no use until rain comes. There has been only one remedy offered for these evils that seemed very plausible to us, and that is the thorough use of the artesian well, and irrigation by its aid. Of course it could never supply the place of rain; but by its help a moderate population could be sustained in almost any portion of the country between the Mississippi and the Rocky Mountains. For the "plains," hitherto supposed to be quite uninhabitable, only need some sort of chance to drop "the old oaken bucket" in them, to make them the great grazing country of the world. The soil is generally too poor for cereals, but the short, mossy grass, which spreads out a carpet of so many thousands of miles in diameter, furnishes excellent perennial cattle fodder, so that wherever the settl e

can find a perpetual spring, he has at once a sure livelihood. As it is, their proximity to us makes the plains a far more valuable place for hunting cattle for their hides than the *pampas* of South America.—*Porter's Spirit of the Times.*

Wheat Growing in Ohio.

The experience of two years past has induced the hope that wheat may again be profitably grown in Ohio. As this crop, on land adapted to its growth, may be largely produced without manure, it becomes a question of deep interest to the generation of farmers now about taking the place of their forefathers, to what extent the production of this cereal may be urged without impairing the future ability of the soil. It has been proven by experience that some soils contain the specific food for the wheat crop in very small quantity, and consequently are soon exhausted. It is said that in some parts of New England, one crop of wheat may be raised on new land, after which barn-yard manure will give a large growth of straw, but the berry will be wanting. And it is well known that some sections once famous for wheat, are so no longer. In view of these facts, it was the counsel of Judge Buel, in the *Albany Cultivator*, many years ago, to farmers, that as soon as they had paid for their farms and accumulated some means for building, thus having their most urgent wants supplied, that they should cease raising wheat on land every other year, but, instead, introduce a course in which wheat should occur not oftener than once in three or four years.

I have been a wheat-raiser for thirty-five years, on the same farm, which is situated in a belt of and about two miles wide, and eight in length, lying between the Huron River and the commencement of the prairie region. The timber was originally oak and hickory, chiefly the former, with other varieties in the swales; the surface undulating; the soil varying from sand to clay; the average what may be termed a sandy-clay loam. This belt has been famous for wheat, so much so that in thirty-five years there has been scarcely an instance of failure on land well cultivated and seasonably sown. The nearest approach to failure in my own experience has been a small yield of ten bushels to the acre one year, caused by the Hessian fly. Twenty-six years ago, I adopted the following course, which I continued with success until the advent of the midge. I divided my wheat land into three fields—one was in clover; one in Summer fallow, pastured with sheep in the Spring, and as the plowing progressed; and one was in wheat. Every Spring, the wheat division was sown with clover and timothy, and immediately afterward with one bushel of plaster to the acre. All my barn manure was applied to Indian corn. The wheat land received no fertilizer but the clover, plaster, and droppings of stock, and what nature furnished from her store of recuperative supply. The average yield of wheat under this course, for a long term of years, was nearly twenty-six bushels per acre. Once I obtained thirty-six, often thirty, never, except one year noted above, less than twenty.

It may be remembered, that this average was from land naturally adapted to wheat, nearly exempt from winter killing, in a great measure, naturally drained, plowed deep and seasonably sowed. Doubtless it was doing well; but not near so well as might be done, nor so well as I should determine to do, if, instead of approaching the close of life, I were just beginning.

The example of English and French cultivators proves that much better can be done. The low price of labor and the high price of land with them, permits a larger outlay than would be remunerative with us, but something more can be profitably done than we are in the habit of doing. I think I proved that with the above course the land was improving more reliable for wheat, and better adapted for the growth of any other farm products.

After the arrival of the midge, I changed the course to corn, oats, and wheat, and then two years rest in clover. The object was to sacrifice something of the annual average to an earlier, thinner and shorter growth of straw, ripening earlier. I went on the principle that half a loaf was better than no bread. This course yielded from fifteen to twenty-five bushels per acre, besides that the midge destroyed—never less than fifteen, and seldom over twenty.

In conclusion I may say, that if we skilfully co-operate with nature, she will aid us with her recuperative powers; if not, the goose that lays the golden egg will die of consumption under our hands. The time may come when the State of Ohio will raise double the wheat it now produces, or when it will cease to be famous as a wheat-yielding State.—Peter Hathaway, Milan, Erie County, Ohio, 1860.—*Porter's Spirit of the Times.*

The Machinery of Agriculture.

It is astonishing what changes and improvements have been effected among the implements and machines of the farm within the last quarter of a century, both in Britain and America. The result has been the diminishing the cost of Agricultural productions, and very greatly increasing their amount. Mr. William Fairbairn, the celebrated English Machinist and Engineer, in treating of the subject, observes:—

"This is a branch of mechanical arts which requires the careful consideration of the mechanician and the engineer. The time appears to have arrived when the introduction of machinery, combined with the wide diffusion of

education, is absolutely required amongst our agricultural population; and in my opinion increased intelligence, together with new machinery, will double the production of the soil, and improve the climate in which we live. Much has already been done, yet very much is yet to be accomplished; we must persevere in the new process of deep draining and subsoil ploughing, and in the introduction of steam-power in place of horse and manual labor, before we can realize such large and important advantages as are now before us. Great changes and improvements have been effected in my own time by the introduction of new implements to relieve the labors of the farm. Everything cannot, however, be done by the mechanician and engineer; much has to be done by the farmer in the preparation of the land to render it *suitable for machine culture;* and a willing heart as well as a steady hand is required of the Agriculturist before he can work for the public good in concert with the engineer. The reaping machine has now attained such a degree of perfection as to bring it into general use on lands prepared for its reception; and the steam plough is making rapid strides towards perfection, and is likely to take the place of horses, and effect a change as beneficial to the farmer as it will be to the public at large."

Upper Canada as a Field for Emigrants.

The correspondent of the *Morning Post* confirms the glowing accounts given by his brother "special" of the *Times* of the immense agricultural resources of Upper Canada. He says—"Intending emigrants may find comfort in turning their views to a land which, in its general physical aspect, in its climate, and its splendid agricultural capabilities, wonderfully resembles the mother country, while, in the variety of its resources, and in their vast extent, it far surpasses the three kingdoms of England, Scotland and Ireland, put together. These facts must be strongly again and again urged on the attention of the emigrating classes at home; and it is, in my opinion, a meritorious act on the part of those who desire well to their country and their fellow-subjects to enlighten the world generally as to the superior advantages which Canada possesses for the emigrant over the timberless, ill-drained prairie lands of the Western States of America, recently so extravagantly bepraised by Mr. Caird, M. P., and other interested parties. I have seen enough within the past few weeks to satisfy me that Upper Canada is the most fitting place for the English emigrant. Thousands upon thousands of acres of splendid land are offered almost at a nominal price by the Canadian Government, and upon the several lines of road opened during the last three years, free grants of 60 to 100 acres are given to actual settlers. This liberal policy has been most successful, and the great valley of the Ottawa, and the vast region lying between the Ottawa and the settled parts of Upper Canada, and extending to the shore of Lake Huron, is gradually being brought within the embrace of civilization. Only ten years ago, the settlements on the Ottawa hardly extended beyond the old town of Bytown; to-day there is navigation on the Upper Ottawa, and flourishing settlements and villages to be found several scores of miles up the Ottawa, and beyond the new capital of Canada. At the two extremities of the province, likewise, settlement is progressing most satisfactorily. At the Sault Ste. Marie, on the river Ste. Marie, between Lakes Huron and Superior, now one of the free ports of Canada, town lots have been freely disposed of during the past two years; and in the rear of the town plot is a fine agricultural country, laid off into 200 acre lots, which are rapidly being taken up and settled upon."

Agricultural Exhibitions.–Autumn of 1860.

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PROVINCIAL AND STATE.

Ohio.—The *Ohio State Fair* (at Dayton, Sept. 25—28,) was quite successful The weather was very fine until the third day, the morning of which was wet and unfavorable, though the attendance and receipts were large. The Ohio Farmer thus sums up the result:—"The Fair was excellent in nearly every department, and the management better than ever before; and what is equally to the purpose, we have never visited a fair where the people seemed to study all the departments with such interest and industry. This was particularly true of the agricultural implement department. The large hall and grounds devoted to this interest, were continually crowded, even more than the horse-ring. The receipts, we understand, were about $12,000, large enough to pay expenses and have a small surplus left."

The Ohio *Cultivator* says of the Stock department:—The magnificent show of Short-horn cattle, was without a rival in any previous field, in this country. The show of thorough-bred horses was much better than any previous display in Ohio, where this class of stock is beginning to be better appreciated; and the other classes of horse stock were of the highest order of excellence. The long-eared tribe was well represented by quite a display of the finest bred asses and mules. Sheep were there in great numbers and unsurpassed quality, of all the leading popular varieties. And the swine! suchg lorious porkers never before spread their oleaginous forms upon the boards of an Ohio State Fair. The Cashmere goats were a rare attraction, opening up a new source of production in this country, which promises to be a profitable one. The feathered fowls were very few and of fine quality.

U. States.—The *Fair of the U. S. Ag. Society* (at Cincinnati, the week preceding Ohio State Fair,) resulted in a failure, as we learn from friends who attended, and reports in western

papers. There was a fair display of machinery and artistic and domestic manufactures, but the show of Stock was a total failure. Though the weather was most favorable, *the People* were not at the Fair—showing that the protests of the State and Local Ag Boards, and the advice of the Ag Press, had been read and heeded.—*Rural New Yorker.*

Maine.—Held at Portland, Sept 25 and 26. We take the following summary from the *Maine Farmer* :—The Horse department, as usual, was well filled with very many excellent horses, and some indifferent ones. Their display, and their exercises in the different departments of their class, demonstrated that there was at least no diminution of strength and discipline in the horses of Maine, and that their reputation for speed and endurance is still well sustained

The Cattle department was well filled Every stall and stable was occupied with choice stock. Marked variations are always manifest in the numerical amounts of the various breeds, according to the locality of the Show. In Kennebec the Durhams were in the ascendant numerically. Here the Durhams were less numerous and the Devons took the front rank A good display of Durhams was, however, made by W. Percival of Vassalboro', O Whittier of North Vienna, and others. Isaiah Wentworth brought on the Prime Devons of the East Poland Shaker family. J. F. Anderson, of South Windham, also brought on his beautiful stock of Devons, which he is very successfully breeding back to the original milking qualities, once known among the Devons of olden time. The Ayrshires were not very numerous, but some excellent specimens were exhibited But one or two Herefords were on the ground; a splendid bull of this breed was exhibited by J. P. Perley of Bridgton. Of Jerseys there was an increase In spite of the lack of portly size and symmetry of form, and notwithstanding the jokes and jeers of those who look at cattle only through a *butcher's eye*, they have steadily increased from an exhibition five years ago, of only *three* individuals, (being all that were then owned in Maine,) up to thirty entered at the last Show. Their dairy qualities are becoming appreciated, and by their good deeds they are slowly working their way as they are better known. The exhibition of Galloways was small

The Hog department, though not very numerous, nevertheless showed a marked improvement. There was not a mean specimen on the ground.

There was a great falling-off in the sheep-fold. We missed the fine flocks of Somerset County. The exhibition consisted of pairs of the several breeds.

We regret to say that there was a great falling off in the Dairy department, not only in the quantity but quality of the products. This must be attributed to the unparalleled drouth which has borne so heavily all summer upon Maine. It is impossible to make good butter and cheese, or much of it, when the grass of the pastures is dried and roasted to a crisp. Another year, we hope, will bring back the Maine dairies to their former good condition.

Lower Canada.—The Lower Canada Provincial Show was held at Quebec, on the 26th, 27th and 28th Sept It was originally intended to hold it in conjunction with the Provincial Industrial Exhibition held at Montreal, on the occasion of the visit of His Royal Highness the Prince of Wales, but that arrangement fell through. We are not in possession of any report except the list of prizes awarded. At the earliest Provincial Shows in the lower Province, the show of cattle was very far behind the times. Since then, however, stock has greatly improved, and now very fine cattle of the pure breeds are to be found in Lower Canada Amongst the chief prize takers for Durham Cattle we find the names of R N Watts, Drummondville; Edmund Longley, Shefford; C. S. Baker, Dunham; B. F. Knights, Stanstead; Lord Aylmer, Melbourne; A. O. Kellum, Compton. For Ayrshires, T. Dawes & Son, Lachine; John Gibb, St. Colomb; James Logan, Montreal; Wm. Ashton, Shefford; John Dods, Petite Cote; Robert Waters, St. Colomb For Herefords, L. K. Benton, Stanstead; Rufus Kimpton, Roxton; John McLary, Compton; P. Fallon, Lachine. For Devons, A. Sanborn, Roxton; Allan Lothrop, Dudswell; E. Longley, Shefford; P Fallon, Lachine; John Wood, Roxton. For Horses, James Logan, Montreal; John Wiseman, St Laurent; Godfrey Blais, St. Pierre; Robt Elliot, Montreal; Michael Scullim, St. Foye: Alex. Hassock, Petite Riviere; John Dods, Petite Cote; Wm. Crawford, Petite Riviere; Robert Cassells, Ste. Foye; Thos. Walker, St. Sylvestre; Wm Bennett, Montreal. For Implements, F. Bourassa, St Jean; James Patterson, Montreal; James Jeffrey, Petite Cote, Montreal; Wm. Evans, Montreal; M. Moody, Terrebonne; Mars Tremblay, Charlesbourg. We have not space to refer to the other departments. The number of competitors in the various classes does not seem to have been very great.

COUNTY SHOWS—UPPER CANADA.

Essex.—Held at Amherstburgh, on the 16th and 17th October. The Sandwich *Maple Leaf* says:—

"The display of articles exhibited was exceedingly creditable to the agricultural progress of the County. The weather was very favorable, and there was a respectable turn out from various parts of the County.

The Fruit and Vegetable Department presented the best appearance, and, certainly, Essex may well lay claim to a high rank in the Province for the raising of those valuable productions; the show of them would do credit to any Provincial or National exhibition, and would at the same time show the striking fertility of our land and salubrity of the climate.

There were also some excellent parcels of Butter and Cheese shown, which we feel satisfied cannot be excelled in the Province.

We consider the samples of Grain offered for exhibition were unsurpassed in Canada; the Wheat, particularly, was of a very choice and even quality, and, from the regularity, color, and preparation of the different lots, the Judges had

a difficult task to give a correct award. The samples of Barley, Oats and Indian Corn exhibited, were also of a very superior quality, and will do much to maintain and increase the celebrity of our district, as unrivalled for the growth of all descriptions of Grain.

The show of Sheep was excellent, and surpassed the Michigan State Show in this respect—those offered by Mr. Shepherd and Mr. Wingfield deserves particular mention.

South Wellington.—Held at Guelph, on Friday, September 28th The show was not quite so large as it has been on some former occasions, but there was no falling off in quality. The neighborhood of Guelph may be considered as the head quarters of the Short Horn breed of cattle in Upper Canada. Here Messrs. Wingfield, Howitt, Fergusson, Stone, &c., commenced their herds, and from hence they have been distributed all over the Province. Amongst the principal exhibiters on this occasion we notice the names of Messrs. Stone, Taylor, Iles, Hogge, Hodgskin, Hughes, Harland, Armstrong, Jackson. Of Leicester and Cotswold Sheep, for which this locality is nearly as much noted as for its Durham Cattle, the principal exhibiters were Messrs. J. Parkinson, J. Kirby, L. Parkinson, John Coulter, W. Whitelaw, F. W. Stone, E. McDonald, &c Grain, roots, &c., which are cultivated to great perfection around Guelph, were well represented, as well as implements and some other domestic products.

Haldimand —Held at Cayuga on October 2nd. The exhibition was successful, particularly in Sheep, in which the show was better than on any previous occasion, both as to numbers and quality, and presented the novel feature for this County of one or two pens of Merinos belonging to Mr. Henry Shaw, of Rainham Among the exhibiters in the Long Wool class were Messrs. Martindale, McEwen, Petch, Blanchard, Kellem, all of whose stock was much admired.

Perth —Held at Stratford, Oct. 4. The Stratford *Examiner* says :—

In point of attendance and the number of entries, it surpassed any previous exhibition Some remarkably fine horses were shown, and the cattle, although not numerous, were generally of a superior appearance. Of sheep there was a very fine display, but there were very few hogs. The display of implements was almost entirely confined to a few waggons and ploughs, straw cutters, &c. The first and second prizes for ploughs were carried away by Messrs Gray of Stratford, and Modeland of Inkerman. Both of these ploughs were made out of the county. Mr. Wm. Robertson of Stratford, showed ploughs entirely of his own manufacture, which were very highly spoken of by competent judges.

In domestic goods, fruits and vegetsbles the show was much larger than usual. There were quite a number of entries in butter, and the samples shown could hardly be surpassed anywhere in the Province There were about half a dozen cheese, but with one exception they were poor in quality and poorly made.

North York.—Held in Newmarket on the 9th and 10th October. There was a creditable display of stock, &c , there being over 600 entries. Amongst the exhibiters of horses, cattle, &c , were J Nixon, B. Jenkins, J. Parsons, J. Playter, Dr. E Morton, Thos. Atkins, G. L. Pearson, Col. Beresford, &c.

East Durham.—This was held in conjunction with Hope Township Society at Port Hope, on Wednesday, October 3. There was a good show of stock and other articles. The *Port Hope Guide* says ; —

The show of horses was better than last year. The number on the ground was larger and they seemed of a superior class. There were some fine brood mares and foals in the Agricultural class; John Beatty took the first prize, and Joseph Peart the second, The 2 years old colts were promising : and the same may be said of the yearlings.

The show of cattle was very creditable indeed. The principal exhibiters in Durhams were Messrs. J. & R. Wade, Mr. John Foott, and Mr. S Dickinson. In Devons, Mr. N Choate had the whole field to himself. In Grades the competion was lively ; and we noticed that in this class the number of exhibiters had largely increased. There were representatives of the herds of Messrs. James Gray, John Beatty, A Choate, John Robb, John Vanslone, Asa Rider, J. & R. Wade, W. Hatch, &c.

There was a fine display of sheep this year. The competition was confined principally to Messrs J. Foott, S. Dickenson, James Martin, J. & R. Wade, John Vanstone, Joseph Simmons, W Hatch, William Guy, T. Tindall, and Michael Sisson of Manvers. In fine wool sheep, Messrs. A & N. Choate were alone.

It is very encouraging to observe that the exhibiters of sheep are increasing every year. It was formeely a matter of complaint that a few persons carried off all the prizes. Of course this could not be otherwise so long as those few persons were the only ones who thought it worth while to breed and show good stock.

The show of grain, roots, vegetables, dairy products, &c., was superior, and that of manufactures and domestic products respectable.

East Brant.—Held at Paris, on 27th September A very successful turn-out. Amongst the exhibiters of horses were M. Folsetter, J Ferris, L. Sovereign, L. Moffatt, &c , of Durham Cattle, C. Taylor, D Buchan, J. Good, S. Moffatt; of Devons, D. Tye, J. Martin ; of Ayrshires and Galloways, G. Stanton, J. Randall, J Roddick ; of sheep, A. Kyle, P. Marshall, W. L Ewing, J. Dickie, J. Lowes, &c. Besides these classes there was a large and excellent display in the classes of pigs, poultry, grain, roots, vegetables, fruits, plants and flowers, dairy products, carriages, implements, harness, leather, domestic manufactures, iron and stone ware, &c.

Frontenac and City of Kingston —This was a union exhibition of the County and the City Electoral Division Societies, held on the 26th and 27th Sept., in the Crystal Palace, on the Provincial Exhibition Grounds, Kingston. There was an extensive listof prizes awarded for horses,

cattle, sheep, hogs, poultry, Agricultural and Horticultural products, ladies' work, implements, fine arts, manufactures, &c., &c. The exhibition was well attended and seems to have been entirely successful It closed with a series of rustic and athletic games and amusements

West Middlesex.—Held at Strathroy, on Tuesday, Oct 2nd. The show was more successful than any previously held, and of a highly creditable description for a new society, and a portion of the County where all the townships are comparatively new. The cattle appear to have been the leading feature of the show. The *Free Press* says:—

"The Township Society of Caradoc exhibited an imported Durham bull, three years old, which was greatly admired, and obtained a prize.

The grade cattle were of the best description, and some of them looked better, and were considered to be of equal value to some of the thorough-breds that were on the ground.

Mr. Buttery, of Metcalfe, exhibited a herd of twenty-one grade cattle, among which were two bulls which were much thought of Mr Pincombe, of Lobo, showed 21 Devons and grades, the former from the well known stock of Mr Locke, of Yarmouth, and some from Mr. Tye's stock, of Wilmot. Mr Jacob Beer, of Metcalfe, had a small herd of seven, and a yoke of capital working oxen. F Arriss, of Metcalfe, brought a fine milch cow, which was much admired. The Secretary, Mr. Keefer, had on show a fine bull, calf, and heifer which attracted considerable attention. A good selection of bulls, young and aged, were also on the ground, but the names of the owners did not reach us. Respecting the cattle, it may be remarked that upon this occasion, the quality rather than the quantity appears to have been aimed at. This year there happily exists no occasion to force cattle on the attention of buyers, and it was generally remarked that the absence of quantity was a sign favourable to the country, while the quality made amends for any deficiency that a superficial observer might detect in quantity.

West Brant.—Held at Brantford on 25th September. We extract the following from the general report in the Brantford *Courier*:—The show, though nothing much to boast of in point of numbers and quantities of the several animals and articles displayed, was in quality superior to any preceding show of the West Riding. The total number of entries was 941.

The show of horses was very large, numbering some 178 entries, and was considered, by competent judges, to be superior to the show at the Provincial Exhibition at Hamilton. While the cattle, in point of good breeding and appearance, could not be surpassed at a County Show, we were disappointed at seeing so few on the ground, the total number of entries in this class being only 65. There were, however, some fine animals shewn.

Of sheep there were 112 entries, and, as usual, the county has maintained its reputation for superior wool and mutton. Though not many were exhibited yet the pigs were worthy of admiration—finer animals we never did see. We regretted to find a lack of agricultural implements. Mr. G. H. Wilkes had his threshing machine on the ground, and Messrs. Wisner and Wilcox shewed one of their very superior and far famed fanning mills. Messrs. Cullver and Lyons exhibited some very fine carriages. In grain there was a good deal of competition, and the varieties were, as is generally the case everywhere this season, very good. The root and vegetable department was liberally supplied with all kinds, of mammoth growths.

Of apples there were no less than 97 entries, among which there were some fine varieties. The collection of Mr G. Pike comprised the largest and finest that ever came under our observation In dairy products the show was deficient. There were few entries. The butter was pretty good—much of it rather salt however. There was a good deal of honey shown, and some fine samples they were

We had almost omitted to notice the very fine display of flowers made by Mr. Thomas Racey of Mount Pleasant, and Mrs Veal of Brantford. But for them, in the floral department, the exhibition would have been wanting They had an endless variety of flowers, and a beautiful and mammoth floral ornament—the handiwork of Mrs. Thos. Racey.

TOWNSHIP SHOWS—UPPER CANADA.

Whitchurch.—Held at Hacking's Corners, October 18 Although the day was rather unfavourable, the attendance was large, and a good deal of interest manifested. The various classes of stock and grain was well represented,—while the display in the Ladies Department was the best of any we have seen the present season. In implements and manufactures (other than Ladies' work,) the exhibition was rather a failure—there being but few entries.

Georgina and North Gwillimbury.—Held at Sutton, Georgina, October 12, 163 entries.

Guelph.—Held at Guelph, October 3. This is one of the oldest and most spirited of our Township Societies. The Guelph *Herald* says of the show:

"There was an admirable turn out in the class of brood mares, while the young stock gave promise of continued improvement. The work and carriage horses attracted much attention, several spans being of a quality it would be difficult to beat in this section of country. The Durhams shown by Mr Stone, Mr. Hogskin and Mr. Hogge were much and justly admired, while not a few of the grade cattle were evidently little inferior to the thorough breds. There were not many sheep in the pens, but excellent specimens of both Cotswolds and Leicesters were exhibited—the former appear to be now the favourite breed in this quarter There were several pigs of portly dimensions, but none appeared to attract more attention than Rev. Mr. Clarke's 14 weeks' Suffolks There was quite a collection of Agricultural implements and vehicles, including churns and washing machines.

The Spring Wheat was the best we have seen for years, the barley was also good, but the oats,

with one or two exceptions, nothing to boast of. There was a good display of roots; the principal premiums falling, as usual, to garden-grown specimens; Messrs. Baker, Hubbard, and Benham showed excellent samples in this class There was a good show of dairy produce, and Mr. T. Bolton's success in carrying off the first premium in both sweet and salt butter was highly creditable to the management of his dairy There were more samples of woolen and other domestic manufactures than are usually seen at Township Shows, and the improvement in this class, although not attracting equal attention, is not less manifest than in the different descriptions of live stock. They were in all 346 entries."

Eramosa.—At the "Four Corners," on Friday, October 5. "There were somewhat fewer entries of stock for competition than at last Show, but there was no deterioration in the quality of the animals shown There were some fine young horses shown. Mr. L. Parkinson, as usual, took the largest number of prizes for sheep, but the difference betwixt the stock of the leading sheep breeders and others is not so apparent, now that all have made very evident progress, as it was some six or eight years since There were many samples of grain on exhibition, and the quality, generally, superior. Eramosa has long been famous for its dairy produce, and there was no falling off on the present occasion. The roots and vegetables were of seemly proportions. Several of the agricultural implements exhibited were noticed approvingly by the Judges, especially a fanning mill from the workshop of Mr. James Mays, Guelph."

Nichol.—Fergus, October 5 The show of stock was somewhat inferior to former years, while that of produce was about equal to preceding exhibitions.

Malahide.—Held at Aylmer, on Tuesday, October 16 The competition in stock was not very great, and the quality of the stock not superior, the prizes offered being small. There was a very good show in grain, and in many samples the quality was excellent. The display of vegetables and apples could scarcely be surpassed; not that the quantity was so very great, but the quality was very fine

"The display of butter," the *Free Press* says, "was truly magnificent, both in quantity and quality, and we are of the opinion that the ladies of Malahide excel in the art of making butter."

Besides these products there was a good variety of woolen fabrics, manufactures of leather, implements, &c.

Mosa.—Held on Friday, October 12. Like some other Township Shows, it was not so good in the essential points as heretofore, showing that there is need of wider organizations, able to offer larger prizes, and to afford greater attractions, in order to bring out the full strength of the country.

Nottawasaga.—The fifth annual exhibition of this Society took place at Bowmore on Wednesday, the 3rd of October The display of horses, cattle, grain, implements of husbandry, &c., &c., was good and far superior to any exhibited on former occasions. A much greater desire was evident on the part of the various competitors to excel in what was brought forward.

King.—Held at Loskey, 16th October. There were 660 entries, and the show was considered a decided success. In stock, as a whole, the show exhibited a marked improvement over last year in point of superiority—particularly in horses and sheep. In the class of saddle horses, there were 25 entries. The show of sheep was very creditable, giving abundant evidence of the care and attention at present bestowed by the farmers of King to this class of stock. In grain and roots and garden products also there was a good display, the samples being bright and clean. There was also a fair display of implements, consisting of root and straw cutters, horse rakes, harrows, ploughs, double waggons, fanning mills, &c. Mr. Leigh and Messrs. Reditt and Scott, and Messrs. Patterson Bros., Richmond Hill; A C. Weed & Co., of Willowdale; and L. Crossley of King, were the principal exhibitors of implements.

York Township.—At Yorkville, Tuesday, October 9th. This was one of the most satisfactory township shows of the season. There were about a thousand entries. All the principal breeds of cattle, sheep, &c., were well represented, as were the products of the field, the workshop, and the domestic circle. Amongst the exhibiters were J. Crawford, Scarboro'; R. Ibson, Malton; James Powell, Wm Baldwin, Geo. Cooper, John Dow, Norman McLeod, E W. Thomson, York Township; E. Musson, Jno. Moore, T. Smith, Etobicoke; and many other well known agriculturists of the surrounding country.

Blanshard.—Held at St Mary's, County Perth, on Monday, October 8th. At this show there was a fair display of live stock, grain, roots, implements, domestic products, &c., and what was especially interesting in a comparatively new settlement, very fine specimens of fruit, consisting of pears, apples, grapes, &c., and superior cheese and butter.

Mitchell.—Held at the Village of Mitchell, October 3rd. Not considered so successful as last year. There is, however, a very respectable list of prizes awarded for stock, products and manufactures of the various descriptions.

HORTICULTURAL SHOWS.

The Horticultural Shows of the season were numerous and well attended. We have not space to more than merely enumerate the following, all of which were more or less interesting and important, viz: Guelph, Kingston, St. Catherines, Cobourg, Hamilton, Toronto."

PLOUGHING MATCHES.

These interesting and useful trials of skill were numerous and well attended the past autumn. Amongst the most important, from the prizes offered, the number of competitors and spectators, were those near Kingston, in Etobi-

coke, York, and Markham Townships. Amongst the others of which we have reports are those of Nichol, London, Middlesex, Westminster, Adelaide, Eramosa, Guelph, Wellington County, Puslinch, Haldimand County, &c. The Kingston *Whig* thus speaks of the match in the County of Frontenac, by which it will be seen that a great improvement has taken place within a few years in this important art in that quarter:—This was a great Ploughing Match indeed, the largest, the greatest and best that ever came off in these United Counties. Nearly fifty teams were entered, and the whole came to work with one accord and one good will to win a prize. The ground had been laid out on the previous day, and by half-past nine in the day, all the ploughs were in action, but it was past two in the afternoon ere all had finished The ploughing was really excellent, so judged by the best agriculturalist from the counties nigh at hand, and some of it pronounced to be the best ever done in Canada. Nearly every ploughman had an iron plough of the newest construction. The appointed Judges had an arduous task to perform, and it was quite dark before their duty was performed.

It must be gratifying to the citizens of Kingston to learn, that the largest proportion of the above sixteen prizes were won by those using the ploughs manufactured by their fellow-townsman, Mr Edward Wilmot of Princess street, Kingston, to whom great praise is due for the excellence to which he has arrived in producing Agricultural Iron Implements; the sett of prize harrows being also of his manufacture."

Correspondence.

The Provincial Exhibition.

Mr. Editor,—Through your paper I wish to say a few things to all whom it may concern. I learn both from this journal, and otherwise, that the manner in which the Provincial Agricultural Shows are managed is not free from objection, as is manifested by the many complaints made by the exhibiters at the late show in Hamilton.

Let us look at some of the causes of complaint as found in the prize list and decision of the judges. In the prize list under class 49, the prize for the best assortment of edge tools was $12, while the first prize for the best collection of stuffed birds is $40, and the same prize for the best collection of live fish; and under class 52 we find a prize of $25, and a silver medal awarded, for the best collection of musical instruments. Now it appears to me and to others, that the prizes were not as wisely distributed as they might have been. Should not the largest prizes be given to the article that is the likeliest to accomplish the greatest amount of good to our country. Now, which is of the greatest importance, Jacob Binkley's live fish, a case of stuffed birds, or even a fine collection of musical instruments, all of which are very fine, and useful in their place, or a manufactory for edge tools? The latter all will say. Why, then, give to one of the greatest importance the small sum of $12, while you give the sum of $40 as a prize to that which can do one any good, except the parties who may happen to have good supply of live fish, or of dead birds.

In respect to the judges, there is a great dissatifaction in very many things, and, no doubt, much of it without any good reason. For instance, in regard to the ploughs. Say some, how could they tell which was the best? They did not try any of them. True, and how, and when, could they try all the ploughs that were on the show ground?

I heard complaints against the judges on *Roots*. I think myself, the judges differed in their judgment from former judges; but they have a right to do so. The supposed ground for complaint is this: prizes were awarded to the longest roots, some of which were ill-shaped, with sprangley roots, but, on the whole, the heaviest samples. And I don't know but this is right. As long as the *turnip*, or *mangel-wurzel*, is sound, what of it, if it should not be smooth? I do not know, but it would be just as fair for all parties, that the prize should be given to the twenty kinds of Carrots weighing the heaviest, and the same with *mangel-wurzels* and *turnips*; for certainly, where the most weight is there the most food is; and, moreover, the higher you enrich your land the rougher will be their roots.

I do not agree with the opinion of the judges on fine-wooled sheep, and much less with the decision of the Board in reference to the cross between *Merino* and *Leicester* sheep.

Why give prizes to grades of any kind if not to all? And why to the female animal rather than to the male? And in regard to the cross here referred to, it is declared by some of the first class manufacturers of the Province to be the best stock of sheep for Canada, taking into account both the carcass and the wool, such sheep yielding a good weight and a quality of each.

But in order to satisfy all your readers on this subject, I invite all our Canadian manufacturers to send in their views in reference to their observations and convictions in this matter, as it may tend to guide parties hereafter tn the choice of a flock.

Will you not, Mr. Editor, send each manufacturer a copy, or rather a number of the *Agriculturist*, with this request in it? S. King.

Ryckman's Corners, Dec. 10, 1860.

[In reference to the above communication, we will merely observe at present that the prizes offered this year at the Provincial Exhibition for special collections of prepared furs of wild animals of Canada, of stuffed birds and animals, of Canadian woods, minerals, &c., are not ordinarily in the list. The object of the Board of Arts and Manufactures, to whom the revision and prepara-

tion of this portion of the Prize list was committed, in offering these prizes, was, as we understand it, on the special occasion of the visit of the Prince of Wales and suite, together with many distinguished and observing strangers, to supplement the extensive display of the domestic animals, of the agricultural and horticultutal products, and manufactures of the country, by such exhibitions of its *natural* products, as would enable an intelligent stranger to observe at a glance as complete a representation as possible of its entire resources and products, natural and artificial. To accumulate and transport a good collection of natural products, might involve a much greater expense for the special occasion, than to exhibit a collection of manufactured goods; and the exhibiter of the natural products would not have the same interest in an advertising point of view as the other. This we dare say was the motive of the Board of Arts in making the prizes referred to as large as they were. On general principles we agree with much that our correspondent advances. In regard to prizes for male and female cross-bred animals, our correspondent will find that not many who have studied the theory and art of breeding will concur with him. On this point we may refer to an able letter on the "Principles of Breeding," under the signature W. A. C., in our last number.—Eds.]

Township Agricultural Societies.

Editor of Agriculturist:—It appears that my remarks published in the *Agriculturist*, of Sept. 1st, on a paragraph in the report of the Dundas County Agricultural Society have been displeasing to one of the directors. In writing that article I had no other motive than that of pointing out the impropriety and injustice of the measure recommended in their report; and thus draw the attention of members of Township Societies, and that of the public thereto. In doing so, my object was not to criticise the whole of that historical report, or to notice in a particular manner, the importance of that which is evident to all, "the introduction of good stock." I simply endeavoured to draw attention to that part of it, which in my opinion contained evil counsel.

I should be sorry to see the *Agriculturist* the medium of personal bickerings, and will only say in reference to a charge made against me, that the party who made that charge was labouring under a wrong impression; that instead of affecting to "sneer at literary and scientific improvement," I only deprecated the plan of the Dundas directors, as being unsuitable, and too contracted for diffusing a taste for those civilizing and humanizing pursuits; and will take the least notice possible of the sneers with which his Dundas epistle is so profusely embellished.

Had the directors of the Dundas County Society recommended the general withdrawal of the legislative grant in their report, as "One of 'em" has subsequently done, there would have been no injustice, or selfishness in the recommendation; but that proposal of his comes now with a bad grace, after expressing a wish that county societies should have the whole of the legislative "plunder." It is unnecessary for me to express an opinion as to the propriety or impropriety of the withdrawal of the government grant; but I would, if I did not trespass too much on the pages of the *Agriculturist*, endeavour to show that the alteration recommended in the aforesaid report, would retard the accelerating progress of agricultural and mechanical improvement.

The scheme of giving premiums for the best cultivated farm, or the best acre or acres of grain, roots, &c., is not new; it is in operation in many places, independent of agricultural societies, or of legislative grants; and it is evident that the incentive to action must be something more than the amount of premium to be obtained. The man is to be pitied who has no higher aspirations than the gaining of a premium, even though it be "liberal."

It is possible that agricultural societies may do good by importing stock, if the businsss is judiciously managed; but it is questionable whether they are the best agents for importing and owning good stock. Valuable stock require great care; and where the interest of the owners in such stock is of that nature which the members and officers of a society will naturally feel, the animals will hardly receive that care and attention which they would if they were private property; and it is difficult to perceive how a county society could with propriety "adequately reward the farmer who incurs the risk" of importing good stock.

No one will suppose that that esteemed gentleman, and successful importer and breeder, F. Stone, Esq., of Guelph, has ever received, or expects to receive "adequate reward" for his exertions and risk in this particular from any society. The many premiums which he and others in that part of the county of Wellington receive will hardly cover the expenses of careful conveyance, and attendance on their stock to and from the places of exhibition, consequently the motives of action in such gentlemen must be something of a higher nature than the expectation of receiving "liberal premiums." It would be a very interesting and useful subject of enquiry for the Dundas directors to ascertain what such motives are.

Being informed that they are open to conviction, I will endeavour to show that if county societies hud the whole of the "plunder" at their disposal, a very large majority of the farmers of large counties would be deprived of the

benefits which they now in some measure enjoy, through the medium of township societies. Let us take this neighborhood for example. On the south-east is the county of Wellington; on the north-west, the county of Grey; from Mount Forest to either county town where the annual shows are held, and where they are very likely to be held, is upwards of 40 miles; and there are members of township societies in this locality, who, were they members of either of the above county societies, would have to travel a few miles more to attend the county societies. And although the places of exhibition are not situated at the "extremity" of the respective counties, few beside a Dundas county director would consider either of these beautiful counties or both united, to be "almost a continent." But the Dundas gentleman "One of 'em" says, in effect, give us (the county society officers) the sole management of the funds, and we will annihilate distance; we will lay down agricultural benefits and blessings within "40 yards of every member's door," even though he resides 40 miles from the fountain of those blessings, the county directory; and in addition to this he will have the inestimable advantage of our college, (perambulatory of course) and of our learned professors, who have the wonderful faculty of sowing broad cast "literarary and scientific" knowledge over the whole county; pardon this slip, Mr. Editor, I was going to say that the residents of such places as those I have mentioned, as an example, would be injured by the dissolution of township agricultural societies; not so much by being deprived of premiums, as from the removal of that higher stimulus to action, a laudable desire to excel.

It is not probable, nay it is not possible, that the farmers of a part of the country recently settled, such as this is, with undrained fields, thickly studded with undecaysd stumps, which are an effectual preventive to good cultivation and the use of improved implements, with insufficient and incomplete buildings, with many miles of bad roads, and generally with inferior stock, can compete successfully with farmers who live in older settlements, who have few, or more of those evils to cantend with, and who are in possession of all those things which early settlers stand in need of. No matter whether the competition be in respect of stock, produce, or cultivation, the farmers of the older settlements, if they avail themselves of their advantageous position, cannot fail to be the successful competitors.

The circumstances of those who live in remote localities, or in new settlements, being so dissimilar, and so much less advantageous, compared with those of older settlements, their local institutions for the improvement of agriculture, or of anything else, should be suitable to their circumstances, snch as are best adapted to meet their wants. County societies may suit the one class, but it is very evident that township societies are more useful to the other.

In this part of the country there are no premiums given for "wheelbarrows, old carts, or ricketty rollers," and if the township societies of Dundas give prizes for such things, they would do well to amend their premium list. Yet I can see no impropriety in encouraging mechanical genius and improvement; good wheel carriages must be constructed on scientific principles, and as a good new cart, well balanced, and of easy draught, or an improved roller is quite as beneficial and useful to the working farmer as a buggy, they should not be despised; and I do not think that awarding a prize for any decided improvement or superior workmaushiip in such articles, wonld be "squandering the public money."

In some other counties, as well as Dundas, there are a few *leading* men who generally take the principal prizes at the shows,—residents of townships contiguous to the place of the county exhibition, who are inclined to amalgamate in some manner, township societies with those of the county; this may suit their purpose, but it would be injurious to others. The competition would not thereby be enlarged, inasmuch as the society would consist chiefly of the farmers and mechanics of the immediate vicinity of the place of exhibition, those more distant feeling little or no interest therein. They, the pioneers in agriculture, would be placed somewhat analagously to the light division of the army, who generally occupy the advanced position, who do the hard fighting, weaken the opposing forces, and clear the way for the grenadiers and Highlanders to step forward and receive the honours.

Near Mount Forest. C.

Agricultural Intelligence.

Mulching Wheat.—Dr. C. Harlan, of Wilmington, Del., advocates mulching wheat. One way of doing this is to sow buckwheat with the wheat in the fall. He says the buckwheat "will often grow two feet high before the frost kills it. It will catch the driving snows, and prevent the winds from sweeping the earth away from the tender roots. It will prevent the frosts from throwing out the crop; and when the Spring returns, it will rot down, and assist to nourish the young plant when it most needs it. This application of buckwheat, is not an untried experiment. It was followed, and strongly recommended, nearly 20 years ago, by Jas. Gaskins, who published a valuable little work in defence of this practice."

Color of Calves.—I have often heard people assert that the color of the calf is not owing to the color of the cow or bull, but to the color of the object which may first catch the cow's attention after being served. Now, if a person had a bull of an objectionable color, they could

easily get calves of any color they wanted by getting the cow served without seeing the bull, and bringing an animal of the color wanted before her. A. B. C. [You raise a question in physiology on which much has been written. The general belief among breeders of stock is that the color descends by the sire's side—frequently not the color of the sire, but of one or other of his progenitors. There is much difference of opinion even amongst Shorthorn breeders as to the influence which the sire exercises on the color of his progeny. There can be little question that the color of calves and foals has been directly influenced by the color of an animal which arrested the attention of one or both—the sire or dam—at the time of copulation.]—*North British Agriculturist.*

Cider Making in Connecticut.—According to the New Haven *Journal*, a very large business is carried on in cider making near that city, one town alone, (Cheshire) manufacturing 8,000 barrels for market. It is first clarified, and then sold in the spring for bottling, at about one shilling per gallon. It is, when clarified, as pure as wine, and is, when bottled, in great demand at the South at $5 per dozen. The *Journal* adds: "The fruit-growers of Connecticut can cultivate the apple with but little expense, and can realize at least 20 cents a bushel for all they can raise. The past season those who have mills at Cheshire have paid from 18 to 20 cents per bushel for all they could find, taking them from the orchards where they had been collected, the raiser being subjected to no expense except that of picking and piling in heaps."

Rain Water not Absorbed by Leaves.—It has always been thought that the rain water which falls upon the leaves and stems of vegetables is gradually absorbed, and nourishes the plant. It appears, however, that this opinion is merely instinctive, and when tested by careful experiment, it proves unfounded, as is shown by a small paper lately published by M. Duchartre. For four years this author has endeavoured to discover, by direct experiment, whether or no such absorption takes place. The plants submitted to these experiments were in pots, their stems and leaves being exposed to the rain, whilst the roots were prevented from absorbing any moisture, being hermetically closed up in the pot. All the plants submitted to this kind of investigation, gave similar results; after remaining exposed to the rain, sometimes for eighteen consecutive hours, they showed no increase in weight; indeed, in some cases, they appeared to have experienced a slight diminution.—*London Photographic News.*

Salt for Fence Posts.—A correspondent of the *N. H. Journal of Agriculture* set some white oak posts, about twelve inches square, thirty years ago, and on examining them the other day he found them all sound. After setting, he bored into each post, about three inches above the ground, with a two-inch augur, at an angle of 45°, and filled the hole with salt and plugged it up. It took about half a pint of salt to each post. The plugs are yet in, and the posts look as sound as when set. He tried none without salt.

Cinders for Pigs.—J. J. Mechi, of Tiptree Hall, England, has been publishing his experience for fattening swine, and, among other things, he has learned the fact "that pigs are very fond of coal ashes or cinders, and that you can hardly fat pigs properly on boarded floors, without giving them a moderate supply daily, or occasionally." He says:—"In the absence of coal ashes, burned clay or brick dust is a good substitute. If you do not supply ashes they will knaw or eat the brick walls of their sheds. I leave to science to exlain the cause of this want. It is notorious that coal-dealers, where pigs have access to the coals, are generally successful pig-feeders. Those who find that their pigs, when shut up, do not progress favorably, will do well well to try this plan; a neighbor of mine found that a score of fat pigs consumed quite a basket of burned clay ashes daily. We know that there is abundance of alkali in ashes.

Fattening Hogs—Fermentation of Food. Now is the time to give attention to the important matter of fattening swine, that is, critical attention,—so as to learn the comparative value between cooked and uncooked food, and between food that is fermented and food in which that process has, in some degree, not taken place. The following we find in the *Rural New Yorker*: Among the many of your contributors, I would ask for information concerning fattening hogs. I have farmed it for thirty years, and when I commenced I adopted the plan of keeping swill barrels and saving all the surplus water of the kitchen, with the milk and whey, and mixing some kind of meal or middlings with it, then let it go through the process of fermentation, after which I fed it to the hogs. I supposed I was doing things about right, until last week, when travelling on the cars, I got into conversation with an intelligent appearing gentleman, who said this process was all wrong—that the fermentation destroyed most of the fattening properties of the grain. He also said that making meal into pudding would not fatten as fast as dry meal. Now, I would enquire of your readers whether these things are so.

Agricultural Meteorology.—The Smithsonian Institution is preparing, by order of Congress, a most interesting report on agricultural meteorology, which will be a welcome boon to our farmers. Besides meteorological statistics, collected during the last ten years at nearly four hundred stations, it will contain the arrival and departure of birds, fishes, and other migratory animals, and also the time of planting and harvesting of crops, etc., at different parts of the United States.

Top-Dressing.—A correspondent of the *Farmer and Gardener*, contends that the beneficial effects of top-dressing applied in the fall are owing to its action as a mulch, rather than as a manure—that it *protects* rather than *enriches*.

Dead Horses.—From two to three hundred horses are supposed to die in this city every week, and the average value of the carcass is about $10, yielding about 1½ lbs. of hair for cloth, about 30 lbs. of hide, 6 lbs. of hoofs and tendons for glue and buttons, 160 lbs. bone, made into snuff-boxes, knife-handles, phosphorus and superphosphate of lime, and 60 lbs. of blood, yielding prussiate of potash. In addition, it is suspected that a portion of the meat finds its way into our markets; that the baked heart and liver season a good deal of coffee; and that the intestines are used as skins for sausages. Nevertheless, our city pays a large sum annually for the removal of these valuable materials to Barren Island.—*N. Y. Sun.*

Tanks for Liquid Manure.—The tank should be built of solid masonry, either rubble or well burned brick laid in the best mortar, and well packed between the walls and bank and underneath with dry brick clay; the bottom should be flagged or laid with brick. If the soil is wet, it must be comparatively shallow, unless good drains be laid outside to intercept and carry off the water; if dry, the tank may be made comparatively deep; the shape must be governed by the site, and may be either round or oblong, more or less wide, and in length according to requirements. It should be arched overhead to keep out rain or other water. The capacity of a tank for 30 cows and 60 pigs depends on the periods it is intended to empty them; about a month is necessary for the contents to ferment and ripen. A tank to contain the quantity of urine voided by the above animals for one month should contain about 1,000 cubical feet, but to effect your object in the best manner there should be a system of at least three such tanks, viz., one ripening and using, one filled and ripening, the other filling.—*Irish Farmers' Gazette.*

Application of Gas Lime.—At the meeting of the North Lancashire Agricultural Society, the application of gas lime was entered fully upon by several farmers present at a discussion on manures. Nearly all of those spoke highly of the benefits which had resulted from its application, when applied in small quantities under 4 tons per acre, and of its injurious effects when applied at the rate of 9 to 10 tons. The evidence of Mr. Baxter was most conclusive as to the benefits from gas lime to pasture lands and meadows. We may mention that we have seen lands which have been dressed with gas lime some years ago, and the crops were better than those on the surrounding farms, but whether this was the result of the application of gas lime, or whether the outlay on other manures had been greater, we did not ascertain—very probably, both causes were in operation.—*North British Agriculturist.*

Agricultural Statistics of Ireland.—It appears from the returns of the Registrar-General for 1860, that there is a decrease of green crops and potatoes this year of 28,949 acres; and it is evident that the difference between this number of acres and 35,000 acres—the estimated deficiency before alluded to, is to be found in the increased area under rape and vetches—7,290 acres—a considerable part of which has certainly been sown without the required manure. This deficiency of 35,000 acres—requiring to be manured—has caused a present loss of over £250,000 in our agricultural produce—a loss which will probably not soon be recovered, and the more to be regretted because the manuring of those 35,000 acres would have assisted much to lay the ground work for the future agricultural prosperity of the country.

The general tenement valuation of Ireland being under £12,000,000, it appears from the above figures that the country has sustained a loss of agricultural produce, in one year alone, exceeding one-sixth of that valuation. This may appear a somewhat startling statement, but it would be of use, if it should lead the agriculturists of Ireland to adopt a more improved system of husbandry, and to make better provision for the future.

The cultivated arable lands of Ireland exceed 15,000,000 acres; and on a careful examination, yield of agricultural produce about £43,000,000 value annually. But under a better system of green crop husbandry,—such a one as would satisfy a farmer that his farm was in a thriving condition, the same lands should yield from £75,000,000 to £80,000,000 value annually, or nearly double what they produce at present.

The Galloway Breed of Cattle.—In evidence of the longevity of this breed of cattle, we quote from the *North British Agriculturist*, a sketch of a cow, the property of the noted breeder, Hugh Watson, Esq., of Keiltor, county of Forfar, Scotland, which died on the first of July, 1850, at the age of *thirty-five years and six months*. "This old cow," says the account, "was the dam of twenty-five calves, all of whom were first-class animals of their breed, having also carried prizes at different competitions in Scotland, England and Ireland in the course of the last thirty years, and they and their progeny now spread over many countries and climes. The old cow retained her fine shape and rich mellow quality till she arrived at the mature age of twenty-eight years, when she gave up breeding or giving milk, but continued active and picked up her food along with the other cows of the herd, never having got anything beyond the common run of the farm-yard. She gradually fell off for the last two years, till she became a most striking picture of old age and infirmity, gave up gathering her food in the fields only two days, when an excellent photograph picture was taken by Mr. Jackson of Perth, and then she lay down and died, never before having been an hour ill,

such was her robust constitution and healthy habits. The Galloway is a hornless Scottish breed of great antiquity. The true Galloway of the present day is black. In herds and droves of them, sometimes comprising several hundreds, scarcely any deviation from this color has been observed. The shape is remarkably compact, the body presenting the appearance of a cylinder —so well balanced are the different parts, and so evenly is the flesh laid on. The skin is thick and mellow, and it is covered with long, wavy hair, which is mixed next the skin with that of a soft, woolly nature. Except the West Highlanders, there is probably no more hardy breed in the world. They are reared principally for beef, the quality of which is equal to any sent to the markets of Britain, except that of the West-Highland and Shetland cattle.

Autumn Application of Manure.—If farm yard manure is to be applied in autumn it should be carted on the land, and immediately spread. It may lie so exposed for weeks. It is believed by the growers of potatoes that when the farm-yard manure is applied at this season there are fewer diseased tubers, with less liability to checks in the growth of the crop, than when this manure is applied at the period the potato sets are planted. Swedish turnips are also believed to grow more freely when the land is manured in autumn—a portion of portable manures being applied when the seed is sown.—*North British Agriculturist.*

Reaping by Machines.—It appears from an enquiry instituted in the County of Haddington, that during the harvest of 1860 there were at work one hundred and sixty machines. The extent of crop cut by these was—

Wheat	3,531½	acres.
Barley	1,940⅓	"
Oats	2,200¼	"
Beans	117½	"
	7,789¾	"

Such facts are generally interesting, and other counties might with advantage collect similar statistics as to machine reaping. There can be now no question that almost any kind of crop can be reaped in a more perfect manner by a well-constructed reaping machine than by hook or scythe.—*Ib.*

How to Cure Bacon.—In answer to a question—"how to cure bacon by the mild process" —the *Irish Farmer's Gazette* gives the following directions:

Singe off the hair, and scrape thoroughly clean; when cut up, rub the flesh side well with common salt, and pack the pieces on top of each other on a tray with a gutter round it to catch the brine; once every four or five days the salt should be changed, and the flitches moved, placing those on top at the bottom; five or six weeks of this treatment will suffice to cure the bacon, when it may be hung up to dry, first rubbing them over with coarse bran, or any sort of sawdust except deal; if smoking be preferred, hang in a chimney; if not, in a dry, airy part of the kitchen not too near the fire. We are not acquainted with the Limerick mercantile process; the Wicklow is similar to that given above and practiced by farmers there.

Horticultural.

Winter Protection.—It is best not to cover raspberries, grape vines, etc., till winter is close at hand, as they will ripen and harden better if exposed till that period. Grape vines are often sufficiently protected if simply laying flat on the ground—or at most, with an inch or two of soil. The same remark will apply to the raspberry and blackberry. Caution is needed in the use of straw around fruit trees, as it may encourage the depredations of mice. If covering the stems, it should not be closely tied about them, as the circulation of some air is best. Evergreen boughs placed about any tender trees, afford the best and safest protection. The thicker the coat they form, the more complete will the covering be.—*Rural Affairs.*

Apples.—There is scarcely an article of vegetable food more universally loved than the apple. Why every farmer in the nation has not an apple-orchard where the trees will grow at all, is one of the mysteries. Let every family lay in from two to ten or more barrels, and it will be to them the most economical investment in the whole range of culinaries. A raw mellow apple is digested in an hour and a half; whilst boiled cabbage requires five hours. The most healthful desert which can be placed on the table is a baked apple. If taken freely at breakfast with coarse bread and butter, without meat or flesh of any kind, it has an admirable effect on the general system, often removing constipation, correcting acidities, and cooling off febrile conditions, more effectually than the most approved medicines.

If families could be induced to substitute the apple—sound, ripe and luscious—for the pies, cakes, candies, and other sweetmeats with which their children are too often indiscreetly stuffed, there would be a diminution in the sum total of doctors' bills in a single year sufficient to lay in a stock of this delicious fruit for a whole season's use.—*Hall's Journal of Health.*

Editorial Notices, &c.

Transactions of the New York State Agricultural Society. Vol. 19. *Albany:* 1860.

We are again indebted to the courtesy of B. P. Johnson, Esq., the indefatigable and efficient Secretary, for another volume of the Trans-

actions of the New York State Agricultural Society, for 1859. These volumes, which we are now in the habit of looking for annually with no ordinary interest, contain not only the history and progress of agriculture, and the yearly exhibition of *the Empire State*, but also a number of elaborate articles possessing a permanent value, and of extensive application. The present volume consists of 800 pages, clearly but closely printed, and contains a number of well executed illustrations. It reflects great credit on the industry and ability of the secretary and contributors, and equal honor on the Society—whose law is progress—which it represents. The Report on the County of Onondaga, one of the best farming sections of the State, by the Hon. George Geddes, one of its most enlightened and enterprising farmers, is a most elaborate production, and would give a character to any of the more advanced European journals. The continuation of the account of Professors Lawes and Gilbert's experiments with different manures, will be found generally interesting and practically useful. An article on what have till recently been regarded as the barren sands of Long Island deserves a careful perusal; as does also one on a Dairy Farm, which is evidently the production of a thinking, practical man. There is likewise a paper containing much useful information on the *cattle disease*, which has occasioned such ruinous losses in Europe, and some alarm, and loss too, this side the Atlantic. We regret to learn that Dr. Fitch's illness has prevented him getting his sixth report on Entomology ready for this volume; but in his able paper on the *Curculio* will be found much that is new to most people, and practicable means of preventing, or at least mitigating its ravages. Mr. Tucker's report on European Agriculture is an able contribution. Upon a closer perusal of the Reports of the Agricultural Societies, which occupy a considerable space of this interesting and instructive volume, we shall no doubt be able to glean many things that will be acceptable and useful to our readers.

Agricultural Societies.

We beg to remind the officers and members of Agricultural Societies, that the annual meeting of Township Societies for the election of officers and directors for the ensuing year, the adoption of a report for the past year, &c., must be held during the second week in January; and of County Societies during the third week of the same month. The Reports must contain a list of the names of the members of the society, a list of the premiums awarded, a statement of receipts and expenditure, and any such general remarks upon Agricultural, Horticultural and other interests of the township or county as the directors may be able to offer. The reports of the Township Societies must be delivered to the directors of the County Society in time for the annual meeting of the latter, and the reports of the County Societies, along with those of the townships, must be forwarded to the Board of Agriculture at Toronto, on or before the 1st of April.

A part of the business of the County Societies is, to nominate persons as members of the Board of Agriculture for Upper Canada, in lieu of those retiring by rotation. The gentlemen who so retire this year are, Hon. Adam Fergusson, Waterdown; Hon. David Christie, Brantford; Asa A. Bunham, Esq., Cobourg; Wm. Ferguson, Esq., Kingston. They are all, of course, eligible for re-election, as heretofore.

Our Next Volume.

The present number closes the volume of the *Agriculturist* for 1861. Our readers are generally aware that it is our practice to close our subscription books at the end of each year, and to send no numbers of the new volume till ordered. This is, therefore, the last number that the bulk of our subscribers will receive till they favor us with their orders anew. To those who remitted the full amount of the annual subscription after we were unable to supply all the back numbers, we shall continue to send sufficient numbers of the new volume to make up the deficiency. We shall also continue sending free copies to secretaries, or other officers of Agricultural Societies.

In regard to the conduct of the *Agriculturist* for the past year, we claim to have fulfilled the promise with which we commenced the volume, and to have furnished a paper abounding in interesting and valuable information, well adapted

to the wants of the agriculturists of the country. Published twice a month, each number consisting of thirty-two large pages, furnished at the low price of half a dollar per annum for single copies, and circulated *post free*, the *Agriculturist* can justly claim to be the cheapest publication of the kind on the continent, perhaps in the world. A mere glance at the Index to the volume, accompanying this number, will suffice to show what a large and varied amount of useful intelligence it has contained. And we are happy to say that our efforts have been appreciated by the farmers of the country, and that the paper attained during the year a much larger circulation than ever previously; so much larger, in fact, than we anticipated, that the edition with which we commenced the year was entirely exhausted before the first of April, and three times subsequently during the year we were obliged to increase the number of copies printed.

We much regret that for the last two or three months, owing to causes on the part of the contractor for printing the *Agriculturist*, it has been considerably behind the proper date of each number in reaching the subscribers. The printing has now, however, been given to another office, and the paper will, after the number of the 1st January, be issued punctually at the proper date of publication. We hope in the forthcoming volume to effect some further improvements in the general character of our journal, so as to render it still more deserving of the confidence and support of the farmers of the country.

We confidently appeal to the agriculturists of Upper Canada, and to others interested in the agricultural and cognate pursuits of the country, for a renewal and extension of the cordial support which they have given to the *Agriculturist* during the past year. It is their own paper, specially designed to supply the intelligence of which they are most in want, and with their liberal support—both in the way of subscriptions and contributions from their pens—we fully rely upon being able to render it so useful and interesting to them, that it will be considered indispensable by every intelligent farmer.

The terms of subscription will be the same as last year: Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars; Thirty-three copies for Fifteen Dollars, &c Payment always in advance. As a further reduction in price on the largest orders, the following money premiums will be paid on copies ordered and paid for prior to or on 1st April next, viz :—

To the officer of any Agricultural Society, member of a club, or other person who shall send in the largest list of subscribers, accompanied with the cash, on or before the 1st April next, a money prize will be paid of	$20
The next largest	19
" next largest	18
" next largest	17
" next largest	16
" next largest	15
" next largest	14
" next largest	13
" next largest	12
" next largest	11
" next largest	10
" next largest	9
" next largest	8
" next largest	7
" next largest	6
" next largest	5
" next largest	4
" next largest	3
" next largest	2
" next largest	1

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Is published in Toronto on the 1st and 16th of each month.

Subscription—Half a dollar per annum for single copies; Eleven copies for Five Dollars; Twenty-two copies for Ten Dollars, &c.

Editors—Professor Buckland, of University College, Toronto, and Hugh C. Thomson, Secretary of the Board of Agriculture, Toronto, to whom all orders and remittances are to be addressed.

Printed at the "Guardian" Steam Press, King St. East, Toronto.

BINDING LIST JAN 15 1949